The Northwestern Miller

Established in 1873 MINNEAPOLIS, MINN., U. S. A., JUNE 13, 1928 Volume 154 Number 9

The Nashville Market

By Wayne G. Martin, Jr.

BECAUSE of its geographical location as one of the leading gateways to the Southeast, a territory which annually consumes a large volume of flour, on account of the fact that it offers an interesting cross section of a metropolitan area in the South where commercial baking is trying to push forward its interests, and because of the tremendous amount of flour bought each year by its blenders, Nashville offers an interesting study in flour merchandising, and one that is probably different from that encountered in any other city.

In studying conditions in the Nashville flour market, circumstances are encountered that exert an influence not only in that city, but reach throughout a large section of the South and Southeast. Because of that fact, consideration of this market is of concern to millers generally, and particularly to those engaged in marketing their products in the before mentioned territories.

If the various factors in the flour and baking industries of Nashville are considered in relation to their relative importance in the market, the city's blending plants will naturally be taken up first, for Nashville is by far the largest center of this industry in the country. Its magnitude can best be described by the fact that, according to recent estimates made to the writer by local blenders and brokers, the Nashville blending plants handle from 1,250,000 to 1,500,000 bbls flour annually.

However, other than such flour as is bought direct from spring and hard winter wheat mills by bakers and wholesale grocers, this represents nearly the entire flour business of the city, for here the blenders fill the role of jobbers, and control a large part of this class of business. Indeed, a personal investigation recently made by the writer showed a surprisingly small amount of outside flour sold in the city except to, or through, the blenders. Even some of the widely advertised flours are handled in this manner, for, as described by a flour broker of that market, "the blenders are also the jobbers of Nashville."

In their methods of merchandising the majority of them are adherents of the policy of going direct to the retail merchants, not only in Nashville but also in large sections of the outside territory in which they are active. While some concentrate their efforts in selling to the wholesale grocery trade in the South, the majority apparently prefer to go direct to the retailers, either through the medium of salesmen or the use of direct mail. The extent to which this latter form of selling has developed is rather surprising, and particularly the area over which it has spread.

The Blending Industry of Nashville

WHILE it is to the family flour trade that the primary sales appeal of the blenders is made, nevertheless in Nashville itself a good part of the hard and spring wheat flours that are bought by the baking industry, particularly that part of it which buys in less than car lots, moves through them. Some of these flours are sold under the mills' brands, in which case the blenders simply act as jobbers, but in other instances they pack the flour under their own brands, and merchandise it in the same manner in which they do their family flours.

The blending industry of Nashville has now been in existence well over a quarter of a century. According to one who has himself been engaged in it for many years, it was first introduced there in 1898 by a firm known as the Globe Milling Co., which was owned by A. P. Youngblood and a partner, whose name this party had forgotten. From that start it has grown until today there are a dozen blending companies in existence in the city, with a daily capacity well in excess of 10,000 barrels.

These companies, their capacities and the names of their managers or other officers, are as follows:

Cherokee Mills, 500 bbls, Cameron Faircloth.
Ford Flour Co., now owned by the Liberty Mills.
Mero Mills, 500 bbls, Phares T. Diehl.
Milford Milling Co., 1,000 bbls.
Nashville Roller Mills, 2,500 bbls, V. S. Tupper.
Royal Milling Co., 500 bbls, E. A. Glenon.
Snell Milling Co., 500 bbls, T. E. Snell.
Southland Mill & Elevator Co., owned by the Milford Milling Co., both of which are controlled by the H. G. Hill Co., operator of a large chain of retail grocery stores in Nashville and the surrounding territory.
Watauga Milling Co., 2,400 bbls, F. J. McCarty.
J. H. Wilkes & Co., 1,000 bbls, R. H. McClelland.
State Milling Co., 500 bbls, Morgan W. Wilkerson.
Tennessee Grain Co., 500 bbls, D. V. Johnson.

Deans Among the Blenders

SOME of these companies have been engaged in the blending business for many years, and have been quite successful financially. Among the oldest blending firms now operating in the market are the Watauga Milling Co., Nashville Roller Mills, State Milling Co., Royal Milling Co. and the Mero Mills. These are names which were well known among blenders years ago.

While Nashville still retains its prominence as the largest flour blending market in the country, the manager of one of the local plants, who has been engaged in the business for approximately a quarter of a century, believes that blending is not centralized there as much as it was some years ago. He says that blending plants are now located at various strategic points throughout the South, and that they are doing an active business. While Nashville still retains its lead as a blending center, nevertheless these scattered plants are doing business which otherwise might be handled in that city.

Although numerous millers today declare that their product is being sold more and more in small units, the blenders are doing very little of the small package business, except in a few cities. The manager of one of the larger plants in Nashville recently stated that 80 per cent of its output is packed in 24-lb sacks.

In discussing the city's blending business with various persons connected with it both directly and indirectly, it is usually not long until the any-quantity freight rate is mentioned. This has been a subject of controversy between the various factors engaged in the flour business in the Southeast for many years.

It is a well-known fact that strenuous efforts have been made for some time to bring to an end the any-quantity rate privileges granted to merchandise originating south of the Ohio River. As this rate structure has been a tremendous factor in the development of the Nashville blending industry, it is readily seen that its elimination would be a severe blow to it.

There is one group which thinks that the discontinuance of the any-quantity freight rate would virtually mean the end of the Nashville blending business. Members of this group point out that the industry has been built up largely through its ability to make small-lot shipments to retailers and jobbers at very favorable freight rates, which would largely be wiped out by the elimination of this rate structure.

Others, while admitting that the loss of the any-quantity freight rate would be a hardship, believe that ways would be found to offset it, at least in part. They say that warehouse stocks would be carried at numerous points from which the jobbing and retail trade could be served.

Still another thought was expressed to the writer by a blender, a close student of the industry, who said he believed it would be possible for flour to be brought into Nashville by water, as extensive improvements are now being made on the Cumberland River, which is already navigable for many miles in both directions from Nashville for the greater part of the year. This blender believes that the use of water rates would partly offset such losses as would be occasioned by the discontinuance of the any-quantity structure.

That the termination of this rate would serve to bring Pacific Coast flours into the South in larger quantities than heretofore was a thought expressed by another blender, who said that if the Nashville plants should be seriously restricted in their operations, Pacific Coast mills would establish their own blending plants at points near the gulf ports and take further advantage of the water routes available to them.

The foregoing is a brief account of one of the most important phases of the Nashville flour market. Its blenders handle a tremendous volume of flour annually, and apparently will continue to do so, unless some change occurs in the any-quantity freight rate. As this has been under consideration by the Interstate Commerce Commission for some time, it is within the realms of possibility that the structure may be changed. What effect this would have upon the Nashville blenders is yet speculative. It is a situation, however, that is being closely watched by all who are interested in the flour business of the South and Southeast.

The Self-rising Flour Industry

THE manufacture of self-rising flour, which has become a highly important part of the soft wheat milling industry, was first introduced in the South at Nashville. Some claim that its origin occurred in that city, but this point seems to be in doubt, as there is a counter claim that it had been made in the East prior to this. Be that as it may, self-rising flour was manufactured in Nashville as early as 1890 by a man named

Copyright, 1928, by The Miller Publishing Co.

H. Q. Owsley. At that time it was generally sold in five and ten cent packages.

In any market where such a large volume of flour is handled as is the case in Nashville, it is natural that there should be a number of brokers. While some flour is bought by the blenders direct from mills, nevertheless the great bulk of it is bought through brokers. A local blender, asked why it was that he bought through brokers rather than direct from the mills, said that the brokers performed a buying function for the blenders that they themselves could not do except at great trouble and expense.

As the Nashville blenders act also as jobbers in the market, selling direct to retail grocers and bakers, the majority of the brokers confine their efforts to selling the blenders. In some cases where bakers have grown to the point where they buy in car lots, brokers solicit their business, and are obtaining part of it. However, flour sold in this manner is but a very small part of that which is handled in Nashville.

The Flour Brokers of Nashville

NEARLY a dozen and a half brokers are now actively engaged in the flour business in that market, among whom are the following: Arnold Brokerage Co., Bush & Reynolds Co., Carter-Puryear Brokerage Co., J. W. Colvert & Co., W. R. Cornelius & Son, James A. Daugherty, Paul F. Eve, D. B. Gambill, John F. Krieg, Lillie & Co., Daniel A. Lindsey, S. W. Polk Co., Henry S. Sawrie, W. V. Tupper & Co., Wells Brokerage Co., and Cohen E. Williams.

While most of them centralize their efforts in selling to the blending trade, nevertheless the volume of flour they handle each year is quite large.

Nashville has two flour mills, with a combined daily capacity of nearly 3,000 bbls. One of these is the Liberty Mills, 1,800 bbls daily capacity, of which C. J. Travis is general manager, and the other is the Colonial Milling Co., 1,100 bbls capacity, with Minus Fletcher, Jr., as president and manager. This latter company operates the B mill of the former Liberty Mills group.

In grain, as well as flour, Nashville has advanced to the point where it is a prominent factor in this industry in the South. The Nashville Warehouse & Elevator Co. operates the only public elevator in the city. It has under its control grain storage capacity of 1,200,000 bus, and recently took over the elevator of J. R. Hale & Son.

Other active grain operators in the market are the Gillette Grain Co., C. E. Rose Co., G. P. Rose & Co., S. S. Kerr, W. R. Tate and McKay-Reece & Co. Although exact information is not available as to the amount of grain handled annually in Nashville, it is safe to say that it ranks well up with the other markets of the South, with the possible exception of some of the gulf ports.

In a city the size of Nashville, which claims a population of 150,000, including adjacent suburbs, one would expect to find a good many exclusive flour jobbers, or at least that the local wholesale grocers play an important part in distributing this product. Such is not the case, however, due largely, as previously explained, to the fact that the blenders also function as jobbers, and also that the local mills are quite active in the market. As both blenders and mills work the retail trade direct, it is readily seen that a jobber would have a difficult time in working up a very large business.

However, there are approximately a dozen wholesale grocers actively engaged in business in Nashville, and many of them carry small stocks of flour, although none of them are big factors in the local flour market. Among the wholesalers are the following firms: C. T. Cheek & Sons, Coleman Stratton & Co., M. E. Derryberry Co., Dobson-Cannon Co., C. B. Ragland & Co., Phillips Trawick & Co., Hooper Grocery Co., and George Hooper & Co.

Of the flour that is sold by these companies, probably a goodly part of it is shipped to points outside Nashville, in the smaller towns where salesmen for the mills and blenders do not call, although there appear to be very few such localities. The volume of flour business done in the city by these firms is extremely small.

A factor which is exerting a large influence upon the distribution of flour in Nashville at present is the chain stores. There are several systems in operation in the city, and between them they are doing a larger percentage of the local retail flour business than many would like to admit. It is in the larger centers of the South, such as Nashville, that the chain systems have made their greatest advances against independent merchants, and certainly this city is no exception. They have unquestionably exerted a demoralizing influence upon the retail trade of the city.

However, as far as flour is concerned, the retail condition does not seem to be as bad here as in many other places. In some cases the chain stores are pushing the sale of their own brands, as is their policy wherever it is expedient with conditions. But there are several brands of flour that are quite popular in Nashville, and these also are stocked by the chains. So far this market has escaped a particularly severe price war on such brands, due to several causes. Local millers and blenders say that it is because they have stood firm in refusing to cut prices to the chain stores, and have also worked in other ways to avoid a price war. But regardless of the reason, the fact remains that Nashville has not been subjected to some of the price battles on flour to which the trade in other cities has been put.

The largest chain store operator in the city is the H. G. Hill Co., which is said to have 110 stores in Nashville, and a number of others throughout eastern Tennessee. In addition to its stores, this company has its own blending plant and bakery. It is indeed a large factor in both the flour and baking industries of the city. In addition to this chain, Piggly Wiggly is operating 17 stores, and Clarence Saunders 11, so it is seen that the city is amply supplied with this type of retailing.

However, the independent merchants are aggressive and are waging a good battle on their own account. A number of high type independent retail grocery stores are doing a satisfactory business, and are said to be holding their own. The retail grocers have a strong organization, and while it is functioning as an association rather than a merchandising body, it is said that the members consider making it more active and aggressive in the future.

One cannot consider the Nashville flour market in its entirety without giving attention to the commercial baking industry, which has developed at a rather rapid rate in recent years. Probably never before have the bakers of the city been as active as they are now, both in improving the quality of their products and in actively merchandising them. Several of the wholesale bakers are doing extensive advertising, as can be attested by a glance at the billboards of the city.

The retail bakers, too, have improved the quality of their breads and pastries, perhaps partly due to the improvement shown by the wholesalers. While Nashville is not a city of retail bakers, as the wholesale plants have a good share of the business, particularly in bread, nevertheless there are a number of neighborhood bakeries, most of which have been brought to the realization that their future existence depends largely upon the quality of their products.

This survey was made in the middle of March, and at that time bread was selling at eight cents wholesale for a 16-oz loaf, and retail prices were in proportion. The chain stores were underselling other competitors at about one cent on all bakery goods. The H. G. Hill Co., which owns the Nashville Baking Co., was selling a five-cent loaf, but only in such of its stores where there was a demand for bread at this price. While the effect of this competition is, of course, felt, nevertheless local bakers, both wholesalers and retailers, are evidently not suffering from it as much as is the case in many other communities.

Blenders Selling to Wholesalers

ALTHOUGH some of the larger wholesale bakeries are buying direct from hard winter and spring wheat mills, and a few of the local brokers are exhibiting a tendency to solicit this business, yet the local blenders, jobbing hard and spring wheat flours, are selling to the wholesalers, and it is from this source that practically all of the 16 retail bakers in the city get their flour. In some cases blenders are selling the mills' brands, and in others they are packing the flour under their own labels.

An interesting feature of commercial baking in Nashville is that several plants are putting a percentage of soft wheat flour into their mixes, and meeting with marked success. One of the local bakers who has been quite successful in this is using approximately 25 per cent soft winter wheat flour in his doughs, and recently stated that he believed it would be possible to use a higher percentage to advantage.

Among the leading wholesale bakers in Nashville, together with the names of their general managers or other executives, are the following companies: American Bread Co., which operates four retail stores of its own in addition to its wholesale business, Bernard Evers; Grocers' Baking Co., L. M. Klein; Modern Bakery, Carl Becker; Mother's Bakery, R. M. Hudson; Nashville Baking Co., Donald McDonald; Standard Baking Co., Mick Becker; G. A. Suter & Sons, G. A. Suter and Albert Suter.

No discussion of the Nashville market would be complete without mentioning that the city is headquarters of the Soft Wheat Millers' Association, of which Dr. W. H. Strowd is secretary, and of the Southeastern Millers' Association, with Dr. J. W. Sample as secretary. These are both doing notable work in their respective fields in behalf of soft wheat milling, and are among the most efficient and valuable milling organizations in the country.

From the foregoing it is seen that Nashville is one of the most important markets of the South in point of volume of flour handled, that most of the business is controlled by the blending interests, with little handled by the wholesale grocery trade, and that the brokers largely confine their efforts, on account of the very nature of the market, to selling to the blending trade. The baking interests of the city are exerting an effort to increase the consumption of their products, both through betterment of quality and active merchandising campaigns, but family flour still controls a goodly share of the city's business. Nashville is unique in its method of local flour distribution, due largely to the fact that it is the largest blending center in the country.

The Old Mill

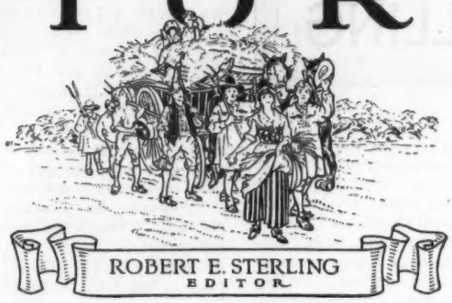
JUST where the river road winds and curves
At the foot of the stony hill,
A little red bridge stands sentinel
Over an old stone mill.
The pigeons strut on the mossy roof
Where the sunshine warmest lies,
And in and out through the open door
The nesting swallow flies.

The old millstones are covered with dust
And the water wheel is still;
The grass grows over the old-time road
And up to the worn doorsill,
Where once the miller in powdered suit
Would stand, as each load came in,
And welcome all with a cheery voice
That rang out above the din.

I follow the old road down the hill
And stand in the open door;
I wait for a face and a ringing laugh,
But the miller comes no more.
The old millstones are covered with dust
And the water wheel is still,
But memories of those vanished days
Hallow the old stone mill.

FLORENCE JONES HADLEY

EDITORIAL



FORESTALLING AS POLITICAL QUACKERY

IT is a curiously interesting circumstance that the equalization fee for farm relief, recently approved by Congress and so vigorously condemned by the President, should be founded on a practice which, until less than a century ago, was forbidden by the common law. Prior to the Act of Parliament of 1844, forestallers, regraders and engrossers, meaning those who trafficked in foodstuffs or attempted "corners" for a money profit, not only were scorned and hated by their neighbors, but, on conviction, were incontinently sent to jail as felons.

In its essentials, the McNary-Haugen bill proposed that a certain large group of citizens should be empowered to enter into combination to control food commodities for the purpose of creating an artificial scarcity and thereby increasing the price to the people as a whole. Not only were they authorized and encouraged to do this in contravention of laws forbidding combination in restraint of trade, but the act even forced their participation and provided that the government itself should direct the enterprise, supply the requisite capital, create the scarcity and determine the toll to be exacted from the consumer's necessities.

It went even beyond this, and consequently very far beyond anything ever attempted by the wicked forestallers of a century ago, by providing that the excess over the bare consumptive requirement should be destroyed. Actually it did not contemplate physical and material destruction by burning or sinking in the sea, but it did require its "dumping" abroad, and treated whatever might be received for it as mere salvage. The loss resulting from this colossal operation in forestalling was merely to be deducted from the profits created by the "corner."

This was, in effect, the McNary-Haugen bill, from which the nation was saved only by the courage and good sense of its President. It is the McNary-Haugen bill of today, no longer by any possibility likely to become a law, but more virile than before as an issue in politics. It is not, of course, an honest issue. On the contrary, it is deceptive in its every aspect and known to be so by a large part of those who are using it to further their own political ends. Free silver had the merit of the honest devotion, however foolish, of those who believed in it. McNary-Haugenism is political quackery with no semblance of sincerity.

* * *

The Irish Free State government was perfectly willing to comply with the plea of home millers for a duty on imported flour until it found that British mills were more efficient, that Irish bakers demanded imported flour, that Irish mills did not have sufficient capacity to supply the trade and that the price of the loaf would be substantially increased. Denial of the millers' plea may be set down as a triumph of Irish sense over Irish sentiment.

* * *

WHAT OF THE CONFERENCE?

May I see Mr. Jones?
Not until eleven o'clock.
Is he in conference?
No, he is busy. —*Modern wheeze.*

ONE of the most worshipped and worshipful gods of business is in danger of being bowled over. Mr. Bertram R. Brooker, writing in Printers' Ink Monthly, estimates that one hundred thousand executives in the country spend two hours per week in conference. This, he reckons, amounts to twelve hundred years, twelve centuries,—a span difficult to comprehend measured in terms of world change,—and nearly all of it wasted in conferences.

The typical conference, according to Mr. Brooker, is discursive, repetitive and muddled; it is colored by personality and temperament, and disordered by interruptions and side issues. Time is wasted, things are not remembered, chatter and atmosphere are not productive of new ideas, decisions are warped by eloquence, sentiment and the desire to flatter superiors and placate juniors. Conferences are, to summarize, part pose, part gesture and largely no good.

The indictment is doubtless too broad. Yet how much of it may be wholly disputed? Some conferences, limited to those vigorously kept in hand by the old man of the shop, no doubt are useful in maintaining contact among the essential parts of the organization. These, however, are not real conferences in the modern sense. The fashionable and thoroughly up-to-date conference is a matter of hours devoted to threshing over old straw, to wise looking down noses, to moving eloquence, to posing,—but why seek to improve upon Mr. Brooker's adjectives?—discursive, repetitive and muddled.

"Abolish the conference," says Mr. Brooker, and adds as a subtitle to his article "a plea for secluded thinking." Much merit to this without a doubt. Yet it seems rather a pity. The conference is blood, bone and sinew of our younger and brighter minds in business. How can "reactions" be determined, "positive appeals" be set up, "consumer resistance" broken down and the prospect "sold" without the "conference"? Business is, indeed, likely to come to a pretty pass if this god of the whole machine is to be discarded. What, now, fun would there be for the captains and kings, or even for the corporals and privates, if they could not cloister themselves and sit, mantled and wrapped in thought, in conference? Have you, Mr. Brooker, no pity?

* * *

BACK TO BREAD AND BUTTER

A MILLER filled with faith and a marked ability to state it in most excellent and straightforward English urges The Northwestern Miller to start a "Back to Bread and Butter Movement," and supports his plea in part as follows:

"We read in Exodus that Moses threw down his staff and it forthwith became a serpent, but wisdom bade him pick it up again, which he did, and again it became a staff for him to lean upon, to sustain him. Perhaps an unthinking world, full of pleasure loving materialism, has to some extent believed that bread is no longer the Staff of Life, and has thrown the staff away. In time, wisdom may tell us too to go back and pick up the discarded staff and make it the headstone of the corner.

"I am not one of those who talk so feelingly and longingly about the good old days. I prefer my electric lights to kerosene lamps, and an automobile to a horse and buggy, and a good furnace to an old-fashioned coal stove; but, at the same time, when it comes to appetites, desires and material ambitions, we could do worse than to revert back to the bread-and-butter days, to pick up the discarded staff and lean upon it. Most of us need support.

"I presume the next step will be to change the Lord's Prayer. I object to this. As bad as we are, most of us can still say with feeling: 'Our Father, Who art in heaven. . . . Give us this day our Daily. Bread.' Take the Lord's Prayer away from us, and what have we left besides the notoriety seeking, slandering, untruthful health food advocates, who build up by tearing down; whose chief weapon is the spirit of fear injected into the minds of a gullible people, and whose ambitions even override the Lord's Prayer? Can you imagine Christ, as He walked from town to town, counting the calories or weighing the starch in the food He ate? He ate and gave thanks. He ate what was set before him. He ate bread and He ate meat. He was wrong, according to a small minority of individuals existing today, but I prefer to believe He was right.

"The whole world would be better off if we could experience a 'Back to Bread and Butter' movement. We would be better off if we would eat and give thanks, effacing from our minds the sordid pictures put before us by a lot of human leeches whose desires for profits have led them to adopt the slogan, 'Stop at nothing!' 'Don't eat,' is their injunction to the people. On the other hand, it is so noticeable that the largest and best hospitals in the country feed their patients white bread. The best baby specialists in the country insist that infants be fed toast made from white bread, and wheat farina cereal as their first real food after weaning. Numberless stomachs are being disordered and diseased today because of forced feeding of quack foods, so-called 'roughages,' that the human system never was supposed to have.

"Therefore, I say, back to our Daily Bread. Let's assert our independence in the name of common sense. Back to the Staff of Life that the wolves in sheep's clothing would have the world discard; back to plain food and plenty of it—meat, potatoes, bread and butter, and vegetables; back to 'Eat and give thanks.'"

Who can remain unmoved by the depth and sincerity of such a plea? We cannot. And yet bread and butter and good, honest grub as a whole will not be restored to their place on the table by the faith of one or even of many men, though it be great enough to move mountains. Restoration of bread to its proper place in the diet can be accomplished only by diligence and persistence in re-educating consumers. This can be undertaken only through the bread industries finding a way to unite and make common cause against ignorance and misstatement. Some day this will be done.

* * *

The Federation pleads for "cost consciousness" in the minds of millers,—a substitution of known facts for guesswork. "Cost consciousness" fairly may be regarded as a half-mile post, for the establishment of certain knowledge of inevitable costs would lead directly to sales uniformly above cost. Thus there would be created "profit consciousness," which is the end and aim of all industry.

* * *

THE OSBORNE MEDAL

AN incident of especial interest at last week's convention of the American Association of Cereal Chemists was the formal announcement of establishment of the Osborne Gold Medal, to be awarded periodically hereafter in recognition of the most conspicuous accomplishment during the year in the field of research in cereal chemistry. Appropriately, the first presentation was made to Thomas Burr Osborne, whose pioneer work in the study of vegetable proteins and scholarly contributions to the literature of cereal chemistry richly entitles him to deanship among those engaged in this most useful work.

In his address of acceptance, presented, in the unavoidable absence of the recipient, by Dr. Alsberg, Dr. Osborne emphasized the extent of the field of knowledge of cereal proteins yet unexplored. While his own interest in this, because of his detachment from commercial application of scientific knowledge of cereals, is that of pure science, much of what he urged upon his associates is of the greatest industrial and commercial importance. The chemistry of wheat, in particular, is as yet insufficiently known, and, while chemists have done much, much yet remains to be done.

The most valuable promise for the future rests in the fine spirit of co-operation among cereal chemists, richly in evidence in the activities of their association, in conventions such as the one held last week, and in the establishment of the Osborne medal. On account of all of these things, the cereal chemists deserve the best the commercial end of the breadstuffs industries can give them. The future of bread as food depends to an insufficiently appreciated degree upon continued progress in the work so capably carried on by them.

THE WEEK IN MILLING

Domestic Demand.—There was a perceptible betterment in the volume of flour sales last week, but new business remains at approximately the settled figure of recent weeks, which appears to average about 30 per cent of capacity. Bookings are of moderate size for near-by shipment, with business rather evenly divided between the family trade and bakers. The more important consumers and distributors seem to have their near-by wants covered, and the others, including the smaller and medium-sized bakers, are contracting for flour only as they urgently need it. Millers are more or less reconciled to a continuance of this policy for the remainder of the crop year. Buyers are closely watching the growing wheat crop, and the imminence of new winter wheat offerings puts a natural check upon buying beyond immediate requirements. On the whole, southwestern mills show no disposition to quote a new crop basis for distant deliveries, and buyers are little interested in such purchases at current levels. Offers are being reported on the New York market, most of the few sales that have been made being of new Texas flours.

Export Trade.—Stocks in export markets are understood to be light, and exporters feel that, with stability in prices, there should be some good business. Better interest was shown last week, and some buyers came in on the break, only to withdraw when prices strengthened. While demand for clears is limited, the supply is apparently not burdensome, although mills in some centers are making low prices to prevent accumulations. Pacific Coast export business is negligible.

Flour Prices.—Spring wheat mills have reduced prices 30@40c bbl since a week ago, hard winter wheat mills about 10c, and soft winter mills 10@35c.

Production.—Last week's mill output picked up slightly over that of the previous week, which was exceptionally light because of the Memorial Day holiday. Minneapolis output was at 47 per cent of capacity, Kansas City 70 per cent and Buffalo 63, these figures comparing respectively with 38, 81 and 81 in the corresponding week of 1927. Pacific Coast mills operated at 45 per cent, against the same figure a year ago.

Millfeed.—The recent sharp drop from the season's peak, which was reached early in May, was checked during the first week in June, and millfeed prices have since experienced a brisk reaction. Minneapolis mills hold spring bran at $3.50 ton over the figures quoted on June 1; Kansas City mills are $2.50 higher on hard winter bran, and St. Louis mills 50c higher on soft winter. Boston prices have also risen 50c ton during the past week, in spite of dull demand and the pressure of Canadian supplies at approximately domestic prices. The upturn is accounted for to some extent by lessening mill production. Supplies were further diminished by the spurt in buying that accompanied the previous week's sharp drop to figures that were very near the season's low point. Demand is mostly for near-by delivery, but July-September shipment has been selling in moderate volume in some centers. Standard and flour middlings also have strengthened, and are in good demand.

European Markets by Cable

LONDON, ENG., June 12.—(Special Cable)—Flour buyers still maintain their waiting attitude. No confidence is shown in regard to purchasing ahead, as they consider the market too uncertain. Today's quotations: Canadian top patents 40s @40s 6d per 280 lbs ($6.82@6.90 bbl), Canadian export patents 37s 6d@38s ($6.39 @6.48 bbl), American milled Manitobas 42s 3d ($7.19 bbl), Australian patents 37s 6d ($6.39 bbl), American low grades 28s 6d ($4.86 bbl), Argentine low grades 25s ($4.26 bbl), home milled, straight run, 38s ($6.48 bbl).

Liverpool.—Demand for flour continues quiet, with prices being shaded to effect sales. Today's quotations: Canadian top patents 40s per 280 lbs ($6.82 bbl), Canadian export patents 37s 6d ($6.39 bbl), American soft winter patents 44s ($7.50 bbl), Australian patents 37s 9d ($6.42 bbl), American low grades 30s ($5.11 bbl).

Glasgow.—Imported flour business is chiefly confined to sales of Australian for forward shipment, this being considered the best value, compared with other imports. Today's quotations: Canadian export patents 37s 6d@38s 3d per 280 lbs ($6.39@6.51 bbl), Canadian winters 45s ($7.67 bbl), American winters 45s ($7.67 bbl), Australian patents 38s 6d@39s ($6.56@6.65 bbl).

Belfast.—Some sales of cheap spot flour have been made, but forward buying is at a standstill. Today's quotations: Canadian top patents 40s per 280 lbs ($6.82 bbl), Canadian export patents 37s 6d ($6.39 bbl), American milled Manitobas 39s ($6.65 bbl), American soft winters 42@44s ($7.16@7.50 bbl), home milled, delivered, 42s 6d@44s ($7.24@7.50 bbl).

Amsterdam.—Business in imported flour is difficult, as home mills are offering their product at attractive prices. Today's quotations: Canadian export patents $7.25@7.55 per 100 kilos ($6.44@6.71 bbl), Kansas top patents $8.20@8.60 ($7.30@7.65 bbl), Kansas straights $7.90@8.10 ($7.03@7.21 bbl), home milled, delivered, $7.20@7.30 ($6.41@6.50 bbl), Belgian flour $7.10 ($6.32 bbl).

Hamburg.—Flour buyers are cautious, in view of the approach of the new crop. Sales are limited to immediate needs. Today's quotations: Canadian export patents $7.30@7.60 per 100 kilos ($6.50@6.76 bbl), Kansas patents $8.30 ($7.39 bbl), home milled, delivered, $10.40 ($9.26 bbl), rye flour $9.30@9.80 ($8.28@8.72 bbl).

Copenhagen.—Trading in flour is very slow, buyers expecting further price declines. Today's quotations: Canadian top patents $8@8.40 per 100 kilos ($7.12 @7.48 bbl), Canadian export patents $7.50@7.90 ($6.68@7 bbl), Kansas patents $8@8.50 ($7.12@7.57 bbl), Oklahoma patents $8@8.40 ($7.12@7.48 bbl), Texas patents $8@8.40 ($7.12@7.48 bbl), home milled, delivered $7.55@7.85 ($6.71@6.97 bbl).

Oslo.—Imported flour demand is at a complete standstill. Buyers are closely watching the markets. Today's quotations: Canadian top patents $8 per 100 kilos ($7.12 bbl), Canadian export patents $7.40 ($6.59 bbl), Minnesota top patents $8.45 ($7.51 bbl), German rye flour $8.15@8.65 ($7.24@7.68 bbl), English wheat flour $7.10@7.30 ($6.32@6.50 bbl).

WHEAT

Wheat trading in London continues slow, with millers buying sparingly and cautiously. The Liverpool market is likewise slow, and stocks are large.

MILLFEED

Feedstuffs are in poor demand in London. Middlings are quoted at £8 7s 6d ton and bran at £7 7s 6d. Plate pollards are priced at £7 8s 9d, afloat. In Liverpool, demand is moderate and prices are lower, bran being offered at £7 15s, ex-mill. Trading is restricted at Belfast, with prices easier. Bran is offered at £9@10, delivered.

OIL CAKE

Oil cakes are in limited demand in London. Home made cottonseed cake is quoted at £8 12s 6d, ex-mill, and Egyptian at £8, ex-ship. The market is steady and slow in Liverpool, where American linseed cake is offered at £11 12s, and Plate at £11 15s, c.i.f.

OATMEAL

In London, Scottish meal is priced at 58s per 280 lbs, ex-store. Continental rolled oats and oatmeal are offered at 50s. American and Canadian rolled oats and meal are quoted at 51s 6d and 50s 6d, respectively. In Belfast some purchasing of Canadian rolled oats has been done at about 52s. Buyers are extremely cautious. Irish rolled oats are offered at 56s and meal at 50@51s, delivered. American and Canadian meal is priced at 50s, c.i.f.

C. F. G. RAIKES.

Flour Output and Percentage of Operation

The following table shows the flour output at principal milling centers, by weeks ending on the indicated dates, together with figures covering a group of representative interior mills in each district, in barrels, as reported to The Northwestern Miller:

NORTHWEST—	June 9	June 2	June 11 1927	June 12 1926
Minneapolis	215,905	187,310	173,958	189,921
Duluth-Superior	19,240	9,655	12,565	12,755
Outside mills*	162,998	170,036	191,132	222,476
Totals	398,143	367,001	377,655	425,152
SOUTHWEST—				
Kansas City	138,404	105,536	143,271	88,570
Atchison	26,329	26,306	22,251	24,113
Wichita	33,394	32,335	51,070	33,839
Salina	23,299	35,103	28,449	25,462
St. Joseph	22,988	20,289	35,009	47,197
Omaha	23,383	16,991	20,555	19,521
Outside mills†	166,834	150,852	171,720	196,788
Totals	434,631	387,412	472,325	435,490
CENTRAL AND SOUTHERN—				
St. Louis	20,100	29,500	25,800	17,300
Outside‡	44,400	42,800	49,300	42,700
Central States¶	76,038	63,010	21,515	37,779
Southeast	60,097	73,043	81,333	77,591
Totals	200,635	208,353	177,948	175,370
PACIFIC COAST—				
Portland	14,995	13,388	21,306	24,134
Seattle	30,191	23,691	21,771	22,901
Tacoma	29,683	23,028	32,288	24,432
Totals	74,869	60,107	75,365	71,467
Buffalo	162,110	166,984	193,790	194,967
Chicago	29,645	28,995	34,000	37,000

The following table shows the percentages of activity of mills at various points. The figures represent the relation of actual weekly output of flour, as reported to The Northwestern Miller, to possible output when operating 24 hours daily on six days per week:

NORTHWEST—	June 9	June 2	June 11 1927	June 12 1926
Minneapolis	47	41	38	36
Duluth-Superior	52	26	34	34
Outside mills*	52	47	46	52
Average	49	43	40	43
SOUTHWEST—				
Kansas City	70	53	81	58
Atchison	85	85	75	82
Wichita	53	52	82	54
Salina	50	75	62	71
St. Joseph	48	43	74	99
Omaha	85	62	75	71
Outside mills†	53	48	52	59
Average	60	53	67	64
CENTRAL AND SOUTHERN—				
St. Louis	33	48	42	27
Outside‡	51	49	57	44
Central States¶	53	53	49	43
Southeast	48	50	52	47
Average	50	51	50	46
PACIFIC COAST—				
Portland	22	20	34	38
Seattle	57	51	47	43
Tacoma	52	40	57	43
Average	45	36	45	42
Buffalo	63	66	81	83
Chicago	74	72	85	92

*Minnesota, Dakota, Iowa and Montana mills outside of Minneapolis and Duluth-Superior. †Southwestern mills outside of centers named. ‡Mills outside of St. Louis, but controlled in that city. ¶Mills of Indiana, Michigan and Ohio, including Toledo.

SUMMARY OF FLOUR QUOTATIONS

Flour quotations reported to The Northwestern Miller as of Tuesday, June 12. (Pacific Coast prices as of previous day.) Unless otherwise noted, flour per bbl of 196 lbs. packed in 98-lb cottons or 140-lb jutes. All quotations on basis of carload lots, prompt delivery.

	Chicago	Minneapolis	Kansas City	St. Louis	Buffalo	New York	Baltimore	Philadelphia	Boston	Columbus	†Nashville
Spring first patent	$7.25@ 7.80	$7.90@ 8.40	$....@....	$7.15@ 7.90	$8.30@ 8.55	$8.00@ 8.50	$7.75@ 8.00	$8.00@ 8.50	$9.00@ 9.25	$8.25@ 8.90	$8.50@ 9.00
Spring standard patent	6.90@ 7.50	7.60@ 8.10	....@....	6.90@ 7.40	....@ 7.80	7.35@ 7.70	7.25@ 7.50	7.75@ 8.00	7.65@ 9.00	7.85@ 8.25	....@....
Spring first clear	6.10@ 6.70	6.10@ 6.40	....@....	6.15@ 6.65	6.75@ 6.85	7.00@ 7.25	....@....	7.10@ 7.40	7.25@ 7.75	....@....	....@....
Hard winter short patent	7.20@ 7.85	....@....	7.95@ 8.40	7.15@ 7.65	....@....	7.50@ 8.25	7.75@ 8.00	8.00@ 8.50	7.65@ 8.50	8.20@ 8.60	8.00@ 8.50
Hard winter straight	6.75@ 7.20	....@....	7.30@ 7.50	6.40@ 6.90	....@....	7.00@ 7.70	7.25@ 7.50	7.75@ 8.25	....@....	7.75@ 8.20	....@....
Hard winter first clear	5.75@ 6.40	....@....	5.70@ 6.30	5.40@ 5.90	....@....	....@....	....@....	....@....	....@....	....@....	....@....
Soft winter short patent	7.30@ 8.30	....@....	....@....	8.15@ 8.90	....@....	8.00@ 8.25	....@....	....@....	8.10@ 9.25	9.25@ 9.75	10.00@10.50
Soft winter straight	7.15@ 7.50	....@....	....@....	7.15@ 7.65	....@....	6.85@ 7.80	*7.25@ 7.50	*7.75@ 8.50	7.60@ 8.20	8.50@ 9.25	8.75@ 9.00
Soft winter first clear	6.25@ 6.75	....@....	....@....	5.90@ 6.40	....@....	....@....	....@....	....@....	7.40@ 7.85	....@....	7.50@ 8.00
Rye flour, white	6.80@ 7.20	7.15@ 7.20	....@....	....@ 7.15	....@ 7.80	7.60@ 7.90	7.50@ 7.75	7.60@ 7.85	7.90@ 8.00	....@....	....@....
Rye flour, dark	4.30@ 4.75	4.50@ 4.75	....@....	....@ 5.75	....@ 5.45	....@....	4.85@ 5.10	5.00@ 5.50	5.60@ 5.75	....@....	....@....

	Seattle (49's)	San Francisco	Standard patent—	Seattle	San Francisco		Toronto	**Winnipeg		Toronto	**Winnipeg
Family patent	$8.10@ 8.60	$8.80@ 9.00	Kansas	$....@....	$8.50@ 9.00	Spring top patent¶	$....@8.20	$....@9.15	Spring exports‡	37s 6d	....
Straight	5.70@ 6.40	....@....	Dakota	8.05@ 8.95	9.50@ 9.75	Spring second patent¶	....@7.60	....@8.55	Ontario 90% patents‡	$7.40	....
Cut-off	6.00@ 6.50	....@....	Montana	7.55@ 8.45	8.75@ 9.00	Spring first clear¶	....@6.50	....@7.55	Ontario exports‡	42s 6d	....

*Includes near-by straights. †Nashville prices, basis f.o.b. Ohio River points for soft winter wheat flour. **In jutes, Fort William basis. ¶98-lb jutes. ‡Secondhand jutes. §140-lb jutes.

BULLETINS ON THE CROPS

Crops Excellent in Western Canada

WINNIPEG, MAN.—Not for a number of years have crops in western Canada been better at this time in the season than they are at present. Bountiful rains have practically covered the whole of the grain growing territory of the prairie provinces in the past week, and with the exception of a few points everything is looking well. Wheat is up from four to six inches, and the plant is strongly rooted and vigorous. A negligible area required reseeding from drifting soil. Cutworms have made their appearance at a number of points in Saskatchewan and Alberta, but reports state that they have done no damage and the recent heavy rains are likely to have checked this pest. A crop with such a good start should be able to stand considerable adversity later on, should it come. Farmers report a little oats and barley still to be seeded, but what is already in the ground is making satisfactory progress. Acreage in these two grains is likely to show an increase of 10 per cent or more. Winter rye conditions are not so favorable, a good deal of winter killing having occurred. Manitoba is best off for that grain. Light frosts were experienced at five points on the night of June 8, but it was not enough to do the grain any harm.

Ontario Crop Outlook Improved

TORONTO, ONT.—General rains and warmer weather have improved the condition of the Ontario winter wheat crop materially. Everything is now fairly favorable in this respect, and the acreage upon which wheat is growing promises to give a good account of itself. No estimates as to the probable yield are as yet available. Naturally, oats, barley and rye are also doing well under these weather conditions, and so also are the fodder crops in most parts, though there are some reports of damage to hay in southwestern Ontario.

Rains Improve Northwestern Outlook

MINNEAPOLIS, MINN.—Bounteous rains have fallen over the spring wheat belt during the last week, improving the prospects for the growing crop very materially. The impression prevails that the present condition is several points higher than when the data for the June government crop was compiled. Generous precipitation was reported the morning of June 12 from all over Minnesota and the Dakotas. This rainfall, while belated, will do inestimable good, furnishing much needed surface moisture and adding to the subsoil reserve.

Montana Prospects Good

GREAT FALLS, MONT., June 12.—(Special Telegram)—Crop conditions in this section of the state are very good. Wheat is making good growth and there is sufficient moisture from rain which fell last week. The weather is cool.

Showers in Pacific Northwest

SEATTLE, WASH., June 12.—(Special Telegram)—Scattered showers over the week end in the Pacific Northwest, and cool weather, have helped the growing wheat crop. Good rains are needed, however, in most sections.

* *

SEATTLE, WASH.—Crop conditions in the Pacific Northwest vary in different sections more than is usual. They are good in many important wheat producing sections and poor in others, as the rainfall has been uneven. Winter wheat condition is fair to good, and that of spring wheat generally poor. Scattered rains fell last week, but additional moisture is needed in all districts. Estimates of the total yield vary from somewhat below normal to normal.

Conditions in Oregon

PORTLAND, OREGON.—Winter wheat in Oregon is looking good, but spring wheat is in need of rain. The trade believes the crop of the Pacific Northwest will be 15,000,000 to 20,000,000 bus less than last year. Winter wheat is mostly headed, and in some places is in the dough. Some early spring wheat is heading. Corn is making good growth, and cultivation is in progress.

Continued Rains in Southwest

KANSAS CITY, MO., June 12.—(Special Telegram)—Aside from continued showery weather, growing and ripening conditions for wheat in the Southwest continue highly satisfactory. So far, rains, while disturbing, have not been injurious, the chief danger of their prolongation being in the possibility of production of low protein crop. Present conditions promise clearing weather. Temperatures are ideal, but warmer weather will now be welcome to hasten ripening. The Kansas state crop estimate issued Saturday, raising the prospective harvest of that state, was based on condition 10 days ago, and its 158,000,000-bu estimate is considered too low, in view of continued improvement in conditions. Harvest is now in full swing as far north as southern Oklahoma, and in scattered areas further north. The first car of new wheat was loaded yesterday at Grandfield, Okla., and will be received at the Enid terminal today. It tested 61 lbs, 13.38 protein. Other early Oklahoma samples so far available suggest satisfactory protein content.

Oklahoma Harvest Near

OKLAHOMA CITY, OKLA.—That present conditions indicate a greatly increased wheat yield over the 1927 crop is expressed by E. H. Linzee, state grain inspector, who has just completed a visit to the wheat growing sections of the state. While the southwestern part of Oklahoma will have a short crop, owing to unfavorable weather conditions, the northern and northwestern wheat growing areas will produce heavy yields. Green bugs have done little damage, and the Hessian fly menace was confined to a small area and did little harm. Harvest over the state is expected to be in full swing about June 20, southern fields being harvested some earlier than that date. Enough rain has fallen to assure full fruition of the grain, and the greatest need for the next week or 10 days will be sunshine and warm weather.

Ohio Weather Unseasonable

TOLEDO, OHIO, June 12.—(Special Telegram)—Weather in this section has been unseasonably cool, with plenty of rains. It is impossible to predict any substantial increase in the previous government figures for the wheat crop, because of the heavy abandonment of acreage already covered by government reports. No likely increase could bring the crop in Ohio and Indiana to equal half of that of last year or to more than one third of the average for the last five years. Michigan will do better, with the possibility of 13,000,000 bus or more. Corn and oats are doing well, with increased acreage, much wheat land having been planted to these grains.

Rains Do Damage in Indiana

EVANSVILLE, IND.—Continued rains of the past two weeks have damaged the growing corn to such an extent that, no matter how favorable the remainder of the season may be, it will never recover. The late corn is especially hard hit. Wheat in this locality, which suffered greatly during the winter, is filling far better than had been hoped, and while indications are that there will be a 30 per cent better yield than had been anticipated, the season's crop will not be on a par with that of last year. Oats, the only crop favored by the cold, wet weather of the past several days, will be unusually good.

European Weather Cool

WASHINGTON, D. C.—European weather last week was mostly cool, with scattered rains everywhere, being particularly heavy in France, Switzerland and southeastern Germany, the Department of Agriculture has been advised. The German agricultural committee reports that crop conditions in Germany on May 15 were satisfactory, although less favorable than a year ago. The condition of winter cereals in the Roumanian regions of South Bessarabia and Moldavia is mediocre, but in the other parts of the country it is reported that these crops are in satisfactory condition. Spring cereals look good.

KANSAS WHEAT ESTIMATE GREATEST IN 14 YEARS

KANSAS CITY, MO.—This year's Kansas wheat crop, as estimated in the June report of the state board of agriculture, will total 157,814,000 bus, the second largest on record and the greatest in 14 years. The record was established in 1914, when 184,000,000 bus were harvested. Next to that was the yield in 1924, 154,000,000. Last year the harvest fell to slightly more than 116,000,000.

While the June report predicts a gain of 10,000,000 bus over the official May report, the figures still are substantially below most of the private estimates made during the past week or two. The official report is based on a probable yield per acre of 14.58 bus, with 10,824,000 acres remaining for harvest.

"Winter wheat condition has made remarkable improvement in the western third of the state," the report says. "It has held its own in central areas, and shows some decline in north central, south central and eastern counties. Abundant rainfall in May, favorable temperatures and comparative freedom from insects and disease, have been factors contributing to the improvement in the west."

Estimated yield of winter wheat in important states, with comparisons, is here shown (000's omitted):

	1928 June	1928 May	Final, 1927	5-year average
Kansas	157,814	147,877	111,283	116,443
Oklahoma	58,120	51,884	33,372	46,240
Nebraska	49,243	45,026	70,868	44,760
Texas	19,656	18,232	17,945	19,783
Ohio	8,501	8,478	28,980	33,871
Illinois	11,669	10,741	30,956	40,654
Indiana	7,277	7,938	27,621	30,057
Missouri	16,528	15,486	15,580	23,451
Pennsylvania	12,651	18,148	20,165	21,795
Michigan	15,197	12,979	19,156	17,607
California	14,816	15,107	13,642	11,785
Oregon	17,527	17,925	23,400	16,478
Washington	32,032	34,200	33,684	24,080
Colorado	14,816	12,764	16,003	13,928

MISSOURI WHEAT ESTIMATES

KANSAS CITY, MO.—The joint state and federal report for Missouri estimates the wheat crop at 16,528,000 bus, compared with 15,580,000 last year. June 1 condition was 60, indicating 11.1 bus per acre from 1,489,000 acres, compared with 10 from 1,558,000 in 1927. The crop in western counties is fair, but in the eastern part of the state fields generally are thin, the report states. Practically all winter wheat in Missouri is of the soft variety.

Winter Wheat Forecasts

Comparative estimates of the winter wheat crops, as issued by the Department of Agriculture, since 1912, in bushels (000,000's omitted):

	April	May	June	July	Aug.	Final
1928	...	486	512	...	...	...
1927	...	594	537	579	552	553
1926	...	549	543	568	626	627
1925	474	445	407	404	416	402
1924	549	553	509	543	589	592
1923	572	578	581	586	568	572
1922	573	584	607	569	541	537
1921	621	629	578	573	543	600
1920	484	484	503	518	582	611
1919	327	399	393	338	715	760
1918	560	572	586	557	555	565
1917	430	366	373	402	417	418
1916	495	499	469	489	454	482
1915	619	692	675	668	656	674
1914	640	630	639	652	675	685
1913	563	513	492	483	510	524
1912	493	370	363	358	389	400
Average	565	555	545	548	546	566

GAIN OF 33,000,000 BUSHELS IN WINTER WHEAT CROP

WASHINGTON, D. C.—With an indicated production of 512,252,000 bus on June 1, the winter wheat crop is estimated by the Department of Agriculture as showing an increase of 33,000,000 bus over the May production report, but rye, spring wheat and oats figures indicate that these crops may set new low records.

Despite the indicated winter wheat gain over the May report, the harvest will fall below last year's crop by 40,000,000 bus, the June 1 survey showed.

Rye condition was reported as indicating the third lowest yield in the department's records, and the condition of 67.9 per cent of normal is the lowest ever reported on June 1. The indication of a 10.3-bu per acre yield exceeds only the figures of 10.2 bus in 1885 and 10.1 in 1887.

Insufficient rainfall was termed the cause of the low spring wheat indication of 79 per cent of normal, the lowest estimate recorded except that of 1926. This lack of rain was noted in all the important spring wheat areas.

The June 1 condition of oats, placed at 78.3 per cent, is the lowest yet reported for that date. Growth was retarded by drouth in most of the corn belt states, the report showed, while in some sections the stand was reported to have been thinned by April breezes.

The barley crop condition was reported slightly above that of last year, but below the 10-year average. Tame hay and pasture showed general improvement, but wild hay slumped from its last year's mark of 89.7 per cent of normal to 74.6 per cent.

Winter Wheat Condition

Condition of winter wheat as reported by the Department of Agriculture, in terms of percentage of normal:

Year	Dec. 1 previous year	Apr. 1	May 1	June 1	When harvested
1928	86.0	68.8	74.9	73.6	...
1927	81.8	84.5	85.6	72.2	75.0
1926	82.7	84.1	84.0	76.5	77.6
1925	81.0	68.7	77.0	66.5	85.2
1924	88.0	83.0	84.8	74.0	77.9
1923	79.5	75.2	80.1	76.3	76.8
1922	76.0	78.4	83.5	81.9	77.0
1921	88.5	91.8	88.0	77.9	77.2
1920	85.2	75.6	79.1	78.2	79.7
1919	98.6	99.8	100.5	94.9	84.0
1918	79.3	78.6	86.4	83.8	79.5
1917	85.7	63.4	72.2	70.9	75.9
1916	87.7	78.3	82.4	73.2	75.7
1915	88.3	88.8	92.9	85.8	84.4
1914	97.2	95.6	95.9	92.7	94.1
1913	93.2	91.6	91.9	83.5	81.6
1912	86.6	80.6	79.7	74.3	73.3
1911	82.5	83.3	86.1	80.4	76.8
1910	95.8	80.8	82.1	80.0	81.5
1909	85.3	82.2	83.5	80.7	82.4
1908	91.1	91.3	89.0	86.0	80.6
1907	94.1	89.9	82.9	77.4	78.3
1906	94.1	89.1	90.9	82.7	85.6
1905	82.9	91.6	92.5	85.5	82.7
1904	86.6	76.5	76.5	77.7	78.7
1903	99.7	97.3	92.6	82.2	78.8
1902	86.7	78.7	76.4	76.1	77.0
1901	97.1	91.7	94.1	87.8	88.3
1900	97.1	82.1	88.9	82.7	80.8
1899	92.6	77.9	76.2	67.2	65.6
1898	....	86.7	86.5	90.8	85.7
1897	99.5	81.4	80.2	78.5	81.2
1896	81.4	77.1	82.7	77.9	75.6
1895	89.0	81.4	82.9	71.1	65.8
1894	91.5	86.7	81.4	83.2	83.9
1893	87.4	77.4	75.4	75.5	77.7
1892	85.3	81.2	84.0	88.3	89.6
1891	98.4	96.9	97.9	96.6	96.2
1890	95.3	81.0	80.0	78.1	76.3

INTERNATIONAL POOL CONFERENCE IS HELD

Many Phases of Co-operative Marketing Discussed at Third Gathering of Organization at Regina, Sask.

WINNIPEG, MAN.—The third international wheat pool conference ended at Regina, Sask., last week, after three days, during which almost every phase of co-operative marketing was discussed.

To those who expected results looking to world unification in the matter of marketing of wheat, there is likely to be disappointment. It was thought that Henry J. May, general secretary of the International Co-operative Alliance, would provide a keynote which would result in a resolution crystallizing the sentiment, but instead, Mr. May's keynote was directed to the formation of a consumers' co-operative in Canada. At a conference to be held at Lloydminster, Sask., in the last week of June, plans will be laid for this organization.

Mr. May was careful and emphatic to suggest that this move should not be any part or parcel of the wheat pool movement, but that it should embrace them and their money, and other producers' co-operatives. He visualized it as the next logical step in the co-operative development of the Dominion.

As to the international pool conferences, the gathering authorized the committee in charge to fix the next time and place for such a meeting. C. Judd, the Australian delegate, extended a hearty invitation to hold the next conference in Australia, and this was referred to the central committee.

Delegates from outside countries took a prominent part in the daily talks, and showed extreme interest in the proceedings. Those from Russia were listened to with keenness. The British visitors included John Cairns, Peter Malcolm and W. Smith, of the Scottish Co-operative Wholesale Society, A. W. Golightly, J. Oliver and A. H. Hobley, of the English Co-operative Wholesale Society, and Sir Thomas Allen, representing the British Empire Marketing Board.

The United States government was represented by Dr. J. F. Booth, agricultural economist, United States Department of Agriculture, while E. R. Downie, manager of the Kansas wheat pool, and John Besecky, manager of the southwestern wheat pool, were among the delegates from the United States. Italy was represented by E. Profumo. Mr. Judd, manager of the Victorian Wheat Growers' Corporation, Melbourne, spoke for Australia. The report on Russia was read by M. S. Lulinsky, vice president of the Selskosojus-American, Inc., of New York, and aroused considerable interest, the British delegates taking the closest interest in the statistics quoted, especially those of production of wheat, and farm holdings.

EASTERN FEED MERCHANTS PREPARE FOR CONVENTION

BUFFALO, N. Y.—Plans are about completed for the annual meeting of the Eastern Federation of Feed Merchants to be held here June 27-28.

At the business session on the morning of the opening day, Emory L. Cocke, Atlanta, Ga., will give an illustrated address on "The Manufacture of Cottonseed Meal and Description of Grades." W. A. Stannard, secretary, Albany, N. Y., will speak on "The Radio as a Business Builder." David K. Steenburgh, editor of the Feed Bag, Milwaukee, and secretary of the Central Retail Feed Association, will discuss "Advertising the Retail Feed Business."

Mills and elevators of Buffalo will hold open house that afternoon. In the evening there will be a banquet at the Statler Hotel.

On the morning of the second day, speakers will discuss "The Actual Cost of Grinding and Mixing," "Will the Chain Store Replace Privately Owned Stores?" and "Is a Strictly Cash Business Possible?" The annual election will follow.

In the afternoon a golf tournament will be held at the Meadowbrook Golf and Country Club, Clarence, N. Y. Women attending the convention will have opportunities for sightseeing, bridge playing and shopping.

Max F. Cohn, president of the Sunset Feed & Grain Co., Inc., general chairman of arrangements for the reception and entertainment of delegates, announced the following committee chairmen: M. C. Burns, Traders' Feed & Grain Co., entertainment; C. C. Lewis, president of the Lewis Grain Corporation, finance; George E. Pierce, Western Elevator Association, Inc., golf; E. W. Mitchell, Mitchell Grain Corporation, transportation; E. B. Collard, of the Collard-Meyer Co., bridge.

THE RYE SITUATION

Blodgett's Rye Review last week pointed out that on April 20 that publication said: "Wheat, the principal breadstuff, establishes a basing price for all other breadstuffs. The 'spread,' however, between rye and wheat is governed by the ratio of the available supply of rye to the combined domestic and foreign demand."

It declares "the soundness of this principle has been very clearly demonstrated by the price course of this crop. Last August, taking 60 lbs as a unit of comparison, rye sold at a discount of 42c under wheat. Nine months later it commanded a premium of 6c. This change of 48c in the 'spread' is due entirely to the fact that the combined domestic and foreign demand promised to very nearly exhaust the available supply. A crop a third less this coming year warrants what 'spread'?"

BAKER PROSECUTED

TOLEDO, OHIO.—Harry Green, Canton, Ohio, who took over the A. B. Flory Bakery, recently was prosecuted by the state for short weight, pleaded guilty, and was fined $25 and costs. Word has gone out that bakers guilty of short weights will be prosecuted.

The Percentage of Soft Red Wheat

By **W. H. Wiggin**

ON this page is printed the government estimate of the winter wheat crop, as of May 1, and along with it an estimate of the percentage of soft red wheat in the total crop of these states in 1924. Probably the majority of soft wheat millers have never seen an estimate of this sort before. It was made by the Department of Agriculture and, presumably, as the percentage figures are for 1924, the practice of classifying the crop in this way has not been continued.

It was furnished in response to an inquiry whether it would be possible to secure for different crops the figures as to the exact amount of red, or soft, wheat grown. Heretofore the classification, as published, has been in the broad divisions of winter wheat and spring wheat. Inasmuch as soft wheats and hard wheats are used for entirely different purposes, the question was raised as to whether it would be practical to make a further division of the wheat grown, so that soft wheat should be in a classification by itself. That is to say, the winter wheat crop would be separated into hard winter and soft winter.

Particular interest attaches to these figures at this time on account of the failure of the soft wheat crop east of the Mississippi River. Millers are concerned to know just what the resources of the country may afford in the way of soft wheat supplies. What variation there may be in these percentage figures of soft red wheat on different crops is not known, and it is therefore impossible to arrive at an average percentage figure which would be dependable. It should be noted that the percentages are for soft red wheat, and not merely for soft wheat. White wheats are excluded.

In a tabulation of the wheat crop by classes of wheat the department has made some interesting estimates for the years 1923 to 1927, inclusive, which are also given, with a separate table for Pacific Coast states and Idaho, which are pertinent at this time. In another table, printed for the Pacific Northwest, it will be observed that the indicated crop of winter wheat is smaller than a year ago by about 10,000,000 bus, but is about 14,000,000 larger than the average for 1923-27, inclusive. There is appended a table giving an idea of the amount of soft wheat exported. This coming year there may be no exports of this class of wheat, so domestic supplies will be augmented that much.

WINTER WHEAT

Estimated production May 1, 1928 (in bushels, 000's omitted), and percentage soft red winter wheat of total winter wheat in 1924:

State—	Estimated production May 1, 1928	Per cent soft red, 1924
New York	4,677	9.2
New Jersey	1,096	99.1
Pennsylvania	18,148	99.2
Delaware	1,628	100.0
Maryland	8,635	100.0
Virginia	6,944	100.0
West Virginia	1,220	99.6
North Carolina	4,242	96.0
South Carolina	652	100.0
Georgia	803	100.0
Ohio	8,870	98.6
Indiana	7,938	87.3
Illinois	10,741	47.8
Michigan	12,979	72.4
Wisconsin	907	10.5
Minnesota	1,490	...
Iowa	6,189	1.7
Missouri	15,486	89.8
South Dakota	949	....
Nebraska	45,026	1.5
Kansas	142,877	4.8
Kentucky	918	100.0
Tennessee	3,225	100.0
Alabama	63	100.0
Mississippi	94	100.0
Texas	18,232	18.9
Oklahoma	51,844	13.8
Arkansas	184	92.0
Montana	13,317	....
Wyoming	926	....
Colorado	12,764	....
New Mexico	1,696	....
Arizona	1,206	....
Utah	3,013	2.5
Nevada	121	....
Idaho	10,146	5.9
Washington	34,200	19.6
Oregon	17,925	2.8
California	15,107	....
United States	486,478	24.2

Total production figures from crop estimates board report. Estimated production by classes based upon questionnaire surveys of local authorities, supplemented by judgments of cereal specialists:

PACIFIC STATES, MAY 1 GOVERNMENT REPORT

	1928	1927	Average, 1923-27
Idaho	10,146	12,274	10,356
Wyoming	926	972	607
Colorado	12,764	16,003	13,928
Utah	3,013	2,888	2,784
Washington	34,200	33,684	24,080
Oregon	17,925	23,400	16,478
California	15,107	13,642	11,785
	94,081	102,863	80,018

WHEAT

United States production by classes, 1923-27 (bushels, 000,000's omitted):

	Total	Hard red spring	Hard red winter	Soft red winter	White	Durum
1923.	797	126	242	272	102	56
1924.	864	192	365	159	52	66
1925.	676	156	206	170	80	65
1926.	831	121	360	229	73	48
1927.	872	199	318	181	94	80

These production estimates are based upon percentages of area by classes in 1924, supplemented by percentages in 1923. Estimates of durum are for four states, plus 1924 indications in other states.

Production by classes, Pacific Coast states and Idaho, 1924-27 (bushels, 000's omitted):

	Total	Hard red spring	Hard red winter	Soft red winter	White
1924..	62,787	4,463	14,852	6,114	37,358
1925..	96,643	6,876	18,598	5,321	65,848
1926..	96,255	5,462	22,601	9,465	58,727
1927.	126,142	6,552	30,185	12,401	76,994

Inspections for export, by classes, July-December (000's omitted):

	Soft red winter	White	Mixed
1925.....	1,283	7,624	3,231
1926.....	17,978	20,722	1,030
1927.....	9,671	21,660	1,650

Exports from Pacific Coast ports, Portland, Seattle and San Francisco:

	Soft red winter	White	Mixed
1926.....	2,072	20,569	792
1927.....	1,474	21,660	1,489

NEW ORLEANS SCENE OF GROCERS' MEETINGS

Speakers Tell Various Groups That Co-operation Between Manufacturers, Wholesalers and Retailers, Is Most Essential

NEW ORLEANS, LA., June 12.—(Special Telegram)—Co-operation between manufacturer, wholesaler and retailer, providing they are to remain in existence, is being stressed in nearly all addresses at the annual conventions of the National Wholesale Grocers' Association, the National Association of Retail Grocers, the American Grocery Specialty Manufacturers' Association and the National Food Brokers' Association.

The initial group meeting of the wholesalers was held this morning, when officers' reports for the past year were heard, all pointing out the problems confronting the trade. Means of reducing costs of operation, which are considered essential to survival of business, were then considered. The retail grocers in their meeting heard reports of various officers and committees, after which the executive board met to consider these reports.

The entire session of the wholesale grocers this afternoon will be devoted to questions and answers. The whole program has been arranged to give most practical benefits to those present, and wholesalers are featuring an exchange of ideas.

June 11 was given over to registration and convention organization work. Attendance is large, and representative of all sections of the country. A joint session of wholesalers and retailers was held the afternoon of June 11 at the Roosevelt Hotel, convention headquarters, when officers of all the organizations in convention spoke. Chain store competition received much consideration. At forthcoming group conferences more detailed attention will be given this problem. The feature address the first day was by the Hon. Smith W. Brookhart, United States senator from Iowa, who viciously attacked what he called capitalistic monopolies, of which he termed chain stores an outstanding example. He also attacked operation of the Federal Reserve banking system and railways, and said the only remedy lay in economic co-operation.

Elaborate entertainment is provided for delegates, the first feature being the annual Asparagus Club banquet on June 11 at the Southern Yacht Club. The various groups will have their own conferences in the remaining days of the convention.

WAYNE G. MARTIN, JR.

HART-CARTER CO. OFFERS 140,000 SHARES OF STOCK

MINNEAPOLIS, MINN.—The Hart-Carter Co., recently incorporated under the laws of Delaware, is offering 140,000 shares of convertible preference stock at $32 per share. The company has acquired the business and assets of the Hart Grain Weigher Co., Peoria, Ill., and the Carter-Mayhew Mfg. Co. and the Twin City Separator Co., Minneapolis. This combination makes the company the largest manufacturer in the world of grain cleaning devices and of equipment that goes into the manufacture of threshing machines. The management of the various units continues in the hands of the men responsible for their success.

BREAD MAKING IN VICTORIA

MELBOURNE, VICTORIA.—Notwithstanding increasing costs of production owing to advances in wages, and labor troubles of one sort and another, the position of the bread making industry in Melbourne appears to be very sound. There is substantial evidence, at any rate, during the last few years, that good-will in the trade has increased greatly in value. Hence, no doubt, the tendency which has been manifest for some time in the direction of improving the equipment of bread factories. Consideration is now being given to the establishment of automatic bakeries in two of Melbourne's suburbs.

FULTON BAG TO HAVE KANSAS CITY PLANT

Building Purchased Last Week—Installation of Machinery and Equipment Will Begin at Once

KANSAS CITY, MO.—Purchase was announced last week of a building at Seventh and Walker streets, Kansas City, Kansas, by the Fulton Bag & Cotton Mills, which that company will use for its new Kansas City bag plant. Installation of machinery and equipment will begin at once, and it is expected that the plant will be manufacturing and printing bags within 60 days. About 200 will be employed.

The new factory is being established here in order to serve to better advantage its customers in Kansas City, western Missouri, Kansas, Nebraska and other western states, according to Henry W. Meyerhoff, local manager. The building is strong enough to carry additional floors, giving the possibility of quick expansion when the volume of business requires it.

The new plant has trackage for three cars. It is served by the Kansas City Southern Railroad, and is well located for service to flour and feed mills in greater Kansas City, and to all freight depots. This was one of the chief reasons for the choice of the location, which was made on a recent visit of Jacob Elsas, Atlanta, president of the company, and one of his building engineers. Mr. Elsas, although 86 years old, still is active in the business.

Bag factories also are operated in Kansas City by the Chase Bag Co., the Percy Kent Bag Co., and the Bemis Bro. Bag Co. The new plant of the Percy Kent Bag Co. started production last week.

RICE FARMERS PLAN TO TAX THEMSELVES TO ADVERTISE

NEW ORLEANS, LA.—Rice farmers of Louisiana, Arkansas and Texas, representing a total of more than 200,000 acres devoted to the production of rice, have agreed to tax themselves 5c bbl on the rice they produce for a period of five years. This money will be used to advertise rice grown in these states. The name of the organization was changed from the National Rice Association to the National Rice Institute. Before the institute can be a going concern, it was indicated that a total of 500 acres in rice land must be pledged, as well as the participation of 70 per cent of the rice mills in the movement.

RICE MILLERS' NEW OFFICERS

OKLAHOMA CITY, OKLA.—At the closing session of the Rice Millers' Association which met recently in New Orleans, D. R. Bertaut, of Crowley, La., was elected president. Other officers are Fred W. Rickert, New Orleans, Edgar B. Roy, Stuttgart, Ark., and Adolph Pfeffer, Houston, Texas, vice presidents; F. B. Wise secretary-treasurer, and R. L. Webber assistant secretary-treasurer.

The national advertising plan, to extend over a period of five years, provides for a total collection of $350,000 a year through co-operation of millers representing 70 per cent minimum of the total milling capacity and growing one half of the rice acreage.

It is expected that between 500 and 600 delegates will attend the convention next year in Galveston, Texas.

STATISTICS ON U. S. GRAIN SHIPMENTS VIA CANADA

Of interest at the present time, when Senator Walsh, of Massachusetts, and his namesake of Montana are urging legislation to curb the practice of shipping United States grain and its products through Canadian ports, are statistics just issued by the United States Department of Commerce giving details of this movement.

The figures published are for the past two fiscal years ended March 31 and show the shipments of United States grain and its products through Canadian ports, giving the countries of destination.

Wheat shipments from the United States through Canadian ports in 1927-28 were nearly double those of 1926-27 and reached a total of 81,085,000 bus. Barley, corn, oats and rye shipments were all considerably greater, although flour shipments were 2,000 bbls smaller. Flour exports via Canadian ports are of minor importance, the total during the two years under review averaging 17,000 bbls, of which about 12,500 went to Newfoundland each year.

THREE PRESIDENTS NAMED FOR STANDARD MILL UNITS

NEW YORK, N. Y., June 12.—(Special Telegram)—Following the election of J. A. Sim as president of the Hecker-Jones-Jewell Milling Co., announced in The Northwestern Miller of June 6, three other units of the Standard Milling Co. have conferred a similar honor upon their mill managers. B. J. Stockman, manager of the Duluth-Superior Milling Co., Superior, Wis., becomes president of that unit, H. P. Gallaher vice president and manager of the Northwestern Consolidated Milling Co., Minneapolis, is promoted to a similar position with his company, and Clarence M. Hardenbergh is advanced from manager of the Southwestern Milling Co,, Inc., Kansas City, to president. W. QUACKENBUSH.

JOLIET MACARONI CO. BUYS LARGE CLEVELAND FACTORY

B. S. Scotland, president of the Joliet (Ill.) Macaroni Co., has purchased the plant of the Cleveland (Ohio) Macaroni Co. This is probably the largest macaroni factory in the world, having cost approximately $1,750,000 to build. Mr. Scotland has organized the Golden A Macaroni Co., of which he is the president, to operate the Cleveland plant. All stock in the new company will be held by the Joliet Macaroni Co. Mr. Scotland started in the macaroni business originally with the Cleveland company, but resigned as its sales manager nine years ago. He incorporated the Joliet company in 1921, and has met with unusual success in its operations.

JAMES McCUNE, PITTSBURGH EXCHANGE PRESIDENT, DEAD

PITTSBURGH, PA.—James McCune, president of the Pittsburgh Grain Exchange, died at McKeesport on June 9, aged 79. He had been engaged in the grain and feed business for nearly 50 years. Mr. McCune was prominent in Masonic circles, and was president of the board of trustees of the First Methodist Episcopal Church, McKeesport. Two sons, Caleb and Fred, survive him.

SIEGFRIED GRUNER, MILLERS' AGENT AT HAMBURG, DEAD

LONDON, ENG., June 12.—(Special Cable)—Siegfried Gruner, millers' agent, Hamburg, Germany, died on June 6 of kidney trouble. He had been ill for six weeks. Mr. Gruner was 55 years old. The business will be continued as heretofore.

BAKERY SLOGAN WINNER

KANSAS CITY, MO.—The Golden Rule Baking Co., Kansas City, recently conducted a widely advertised contest among housewives to determine the best slogan for its bread, which sells under the brand name of "Jersey Cream." About 10,000 slogans were submitted. The prize, a Ford Tudor sedan, was awarded to the sender of "True to the Name—Always the Same."

RESIGNS AS ECONOMICS CHIEF

Lloyd S. Tenny, chief of the Bureau of Agricultural Economics of the United States Department of Agriculture, has submitted, and Secretary of Agriculture Jardine has accepted, his resignation, effective July 16. Mr. Tenny announces that he will accept an executive position with the Associated California Fruit Industries, Inc., a growers' organization. Secretary Jardine expressed his regret that the department should lose Mr. Tenny's services. No announcement was made as to his successor.

CHICAGO FLOUR CLUB PLANS ANNUAL OUTING

CHICAGO, ILL.—The golf and entertainment committees of the Chicago Flour Club are busy arranging for the club's third annual golf tournament and field day, to be held at the Nordic Country Club on July 24. The Minneapolis Milling Co. will give a silver cup as first prize in the horseshoe tournament, and other prizes for this and other field events will be donated by John F. Benes, of Lothes & Benes, W. S. Johnson, of W. S. Johnson & Co., H. E. Burgess, of the Gold Medal Flour Co., the Modern Miller, C. C. Anthon and G. C. DeGroat, of the Southwestern Milling Co., Inc.

In the golf tournament the prize for the low net will be The Northwestern Miller cup, won last year by F. M. Rosekrans. The Crooks Terminal Warehouses have given a golf bag and the Washburn Crosby Co. a dozen golf balls as additional prizes. Frank M. Rosekrans, of the Bertley Co., will also donate a prize. C. C. Anthon and G. C. DeGroat, of the Southwestern Milling Co., Inc., will furnish a guest prize. The members of the club will travel to and from the golf grounds in busses leaving Chicago at 9:30 a.m.

GOERZ SALESMEN MEET

HUTCHINSON, KANSAS.—A conference of sales representatives of the Goerz Flour Mills Co., which lasted for nearly a week, was closed June 7. Salesmen were entertained by Rudolph A. Goerz, president, and taken for brief trips through the fields. Among those present were D. E. Price, Oklahoma representative; W. D. Decker, Indiana representative; Robert Brown and O. W. Williamson, southeastern states representatives; F. L. Callicotte, northern Missouri and eastern Nebraska representative; E. E. Stubblefield, southeastern Kansas and southwestern Missouri representative.

TO BUILD BAKERY IN NEW JERSEY

TOLEDO, OHIO.—It has been decided by the interests back of the Dayton (Ohio) Bread Co. to build a duplicate of this plant at Paterson, N. J., to be operated by a new organization known as the Jersey Bread Co. These interests are the same as were formerly in the Holland Bread Co., Toledo. Mills, Rhines, Bellman & Nordhoff, Toledo, are the architects, and it is reported that a contract for the erection of the plant was let last week.

YEAST FACTORY FOR ESTHONIA

WASHINGTON, D. C.—A new yeast factory is to be opened in the near future at Kohila, Esthonia, according to the United States consul at Tailliin, Esthonia. Up to the present, there has been only one such factory in Esthonia, at Tartu. The consumption of yeast in that country in 1927 totaled 433,000 lbs, which is said to be about 20 per cent in excess of the domestic production and consumption in 1926.

MILL'S ANNIVERSARY CELEBRATION

DALLAS, TEXAS.—The Texas Star Mills, Galveston, Texas, will celebrate its fiftieth anniversary this month. The first sack of flour was manufactured there on June 30, 1878. Since that time the plant has increased its capacity to 1,700 bbls daily. Charles H. Newman is general manager of the company, which belongs to the Kell group.

W. J. GROVER TO ACME COMPANY

KANSAS CITY, MO.—W. J. Grover, who resigned last week as sales manager for the Kansas Mill & Elevator Co., Arkansas City, Kansas, has joined the staff of the Acme Milling Co., Oklahoma City. He will be in charge of sales under L. E. Davy, manager. George G. Sohlberg is president of the Acme company.

SOUTHWEST STUDIES NEW CROP MOVEMENT

Millers at Meeting Favor Restoration of Maximum Differential of 5c Per 100 Lbs in Ocean Rates

KANSAS CITY, MO.—More than 100 millers from Kansas, Nebraska, Oklahoma and Kansas City attended a special meeting of the Southwestern Millers' League at Wichita, Kansas, on June 9.

Following addresses by L. E. Moses and by Sydney Anderson, president of the Millers' National Federation, the meeting gave its chief attention to consideration of the problems created by the probably impending heaviest movement of new crop wheat ever witnessed in the Southwest. The bumper crop now in prospect, coupled with the greatly increased use of combination harvesters and threshers, assures an enormous movement from farms. Barring the possibility of rains, this movement will begin within a fortnight and will reach its peak by the middle of July. Present prospects are that railways, mills and elevators will be taxed to their capacity to take care of this great flood of new wheat.

The evident general sentiment among millers was that their storage facilities would be filled early in the movement, something, of course, depending upon the protein characteristics of the early marketed wheat.

The only formal action taken by the meeting was adoption of a resolution, presented by David S. Jackman, chairman of the export committee, favoring effort to secure restoration of a maximum differential of 5c per 100 lbs in ocean rates on wheat and flour. The resolution expressed appreciation of the past action of the United States Shipping Board in establishing this maximum differential, and urged its good offices in an effort to restore it through joint action of all ocean carriers. The subject was presented as of major importance to European export trade in a recent editorial in this publication by Mr. Raikes, its European manager.

Consideration also was given to a proposal made in the columns of this paper last week that the crop reporting board of the Department of Agriculture make separate reports covering hard winter and soft winter wheat conditions. The subject was referred to the grain committee, with instructions to report its views at an early meeting of the league.

CLEM L. BECKENBACH JOINS SOUTHWESTERN MILLING CO.

KANSAS CITY, MO., June 12.—(Special Telegram)—Announcement will be made tomorrow of the resignation of Clem L. Beckenbach as secretary and sales manager of the Rodney Milling Co. to become associated with the Southwestern Milling Co., Inc., as director of sales.

J. Juul, assistant secretary and sales manager of the Southwestern company, will continue in general supervision of sales under Clarence M. Hardenbergh, president.

With his association with the Southwestern company, Mr. Beckenbach, who has meantime made an enviable reputation through his work with the Rodney organization, returns to his first milling connection. When the original Southwestern mill was built by L. R. Hurd, Mr. Beckenbach was employed as a boy on construction work. Later he worked in the mill itself and subsequently was employed in the office, advancing to an important position in the sales department.

HIGH PROTEIN NEW WHEAT

OKLAHOMA CITY, OKLA.—Wheat which was threshed by hand was sent June 5 to the Enid (Okla.) Milling Co. for a chemical analysis to determine the quality and protein content of the 1928 crop. Tests showed the percentage of protein content to be 12.60, 13.50 and 14, in comparison to last year's 12 per cent. Grain men were delighted with the results of the test, and declared this year's crop to be of high quality.

LETTERS TO THE EDITOR

"THE DIZZY PROTEIN MARKET"

Editor The Northwestern Miller:

When Mr. Wheat Man or Mr. Miller decries the so-called protein fad, will you please ask them for me just what they would use as a substitute in measuring the quality of wheat? Just supposing, through some miraculous waving of a wand, the word protein were eliminated from the vocabulary of the miller and grain man, would it not work out this way? The Smith Grain Co. would call us on the phone and say it had a car of very nice wheat to sell. We would ask just how good it was, and it would tell us, "Oh, it is very nice strong wheat." "Well, but how strong?" "Oh, it will make a very nice, lively flour."

In other words, as one man asked the information desk at the North Station in Boston, "How many nickels are there in a handful?"

My idea is that we really must recognize the fact that wheat does not run as uniformly good as it did a few years ago, and I have never known of any one offering a real substitute for a real protein measurement.

I believe it safe to say that millers as a whole go just as low in protein as they think they safely can. If we could reduce the protein content of our flour one half of 1 per cent, you can gamble we would do it. During this whole crop year we have been paying 10c bu premium for that extra one half of 1 per cent protein, not because of any fad, but because our experiments showed that we could not go safely below where we have gone.

One point on which we millers are very lax in this matter of protein, however, is that we have not yet gone to the simple basic point of bringing all protein findings to a common moisture basis. I believe this will be the next step.

Because I have defended this so-called protein principle as I have done above, I have been accused of all kinds of things in the way of furthering it, but the plain fact is that I doubt if there is a miller in the country that sells a smaller proportion of his flour based on a guaranty of protein than we do. We certainly do not sell 1 per cent of our output based on such a guaranty.

As to measuring quality of protein, I presume you know that no laboratory or chemist in the world has yet found a means of measuring quality at all accurately by any chemical analytical process, and so far as measuring it by laboratory bakings is concerned, that method is frequently—I might say most frequently—very misleading.

I could have saved you a lot of time in reading if I had just let this letter go with the first suggestion that when you hear miller friends discussing and cussing protein, you just ask them what they have to offer as a substitute as a description of strength of either wheat or flour.

Yours truly,
FRED J. LINGHAM.

EDITOR'S NOTE.—But isn't Mr. Lingham's excellent presentation of his theme somewhat weakened by his statement that "no laboratory or chemist in the world has yet found a means of measuring quality" (of protein)? Isn't a great deal of money paid out for protein in wheat,—and flour,—on the basis of "brute strength" represented by protein content, when the baking performance, largely reflecting the quality of the protein, can only be approximated?

PACIFIC NORTHWEST GRAIN DEALERS MEET THIS WEEK

SEATTLE, WASH.—The annual meeting of the Pacific Northwest Grain Dealers' Association will be held at Walla Walla, Wash., June 15-16. Addresses will be made by L. P. Baumann, secretary-treasurer, Centennial Mill Co., Seattle, on "Farmer, Grain Dealer, Miller"; by Professor E. G. Shaffer, State College of Washington, on "Work in Wheat Improvement at the State College"; by Phil Benedict, Seattle manager Kerr Gifford & Co., Inc., on the "Option Market as It Applies to the Pacific Northwest"; by Miles Poindexter, former ambassador to Peru, on "Stabilization of Farm Prices"; by A. Eugene Kelley, president Kelley Grain Co., Pullman, Wash., on "Why Uniform Trade Rules Should Be Adopted by the Grain Dealers' Association," and by William E. Shoenfeld, Pacific Northwest representative of the United States Department of Agriculture, on "Glimpses of Grain Marketing in Europe." W. H. Foster, grain exporter, Seattle, will act as toastmaster at the banquet Friday evening.

CANADIAN MILL OPERATION LIGHTER THAN IN THE U. S.

Mills reporting to the dominion bureau of statistics manufactured 1,314,012 bbls flour during April, compared with 1,616,799 in the previous month. The April output this year compared with a production of 1,154,000 last year.

The Northwestern Miller recently has undertaken to work out the average rate of operation of Canadian mills during the 12 months ended April 30, 1928. The purpose of this calculation was to provide a basis upon which Canadian and United States mill production might be compared. During April the production of Canadian mills indicated that they had operated at 42 per cent of their potential capacity, figuring on a 24-hour basis, with every day a working day except Sunday. The output of United States mills during April, as reported by the United States Bureau of the Census, was equivalent to 50.5 per cent of their capacity.

The rate at which Canadian mills operated during the 12 months ended April, 1928, was lighter than the operating percentage of United States mills, the figures being as follows:

	Canadian mills	United States mills
May, 1927	46	53
June, 1927	41	50
July, 1927	32	52
August, 1927	35	54
September, 1927	48	64
October, 1927	64	64
November, 1927	67	59
December, 1927	52	54
January, 1928	48	56
February, 1928	46	56
March, 1928	47	56
April, 1928	42	54

The actual output of flour by both United States and Canadian mills during the first four months of 1928 increased over the corresponding period of 1927. The increase has been greater in the case of Canadian mills than in that of United States mills, as it represents an increase of 12 per cent in Canadian flour output and only 9 per cent in United States production. For the four months ended April, Canadian flour production totaled 5,973,000 bbls, compared with 5,335,000 in the same period of last year.

LICENSE TAX LAW WILL NOT AFFECT LOUISIANA BAKERS

NEW ORLEANS, LA.—Bakers have been eliminated from the bill amending the license tax law, which was favorably reported by the Louisiana House ways and means committee on June 5. The substitute bill not only exempts bakers, but ice and milk dealers who deliver by wagon or truck. Peddlers of meat and vegetables will be required to pay a license tax to operate, the exact amount of which is to be determined before the bill is submitted to the legislature.

CANADIAN BAKERIES MERGE

MONTREAL, QUE.—John R. Gale, president of the Eastern Bakeries, Ltd., St. John, N. B., has announced the authorization by the company's shareholders of an increase in the company's capital stock to $600,000. The erection of a plant at St. John, N. B., and the inclusion of the company in a merger of bakeries covering the maritime provinces also was authorized.

It is stated that the firms entering the merger are the Maple Leaf Bread Co., Moncton, Campbell Bakeries, New Glasgow, Lynch's Bakery, Goldencrust Bakery and Bake Rite Bread Co., Sydney, and one of the leading bakeries in Fredericton. There will be but few changes in the individual management of the constituent companies.

SOUTHERN ILLINOIS MILL GROUP WILL MEET JUNE 27

ST. LOUIS, MO.—The annual meeting of the Southern Illinois Millers' Association will be held at the Waterloo Country Club, Waterloo, June 27. Due to the retirement from the southern Illinois milling field of A. D. Brubaker, president of the association, who has resigned from the Southern Illinois Milling & Elevator Co., Murphysboro, Ill., the meeting will be in charge of A. L. Gilster, first vice president.

MAPLE LEAF MILLING CO. EARNINGS SHOW INCREASE

TORONTO, ONT., June 12.—(Special Telegram)—The statement of the Maple Leaf Milling Co., Ltd., for the year ending March 31 shows a profit of $513,293, the best showing made since 1922. This represents an earning on common stock of 7.63 per cent. A shareholders' meeting is scheduled for June 20.

LARGER GERMAN GRAIN STOCKS

WASHINGTON, D. C.—Stocks of grain in the hands of German farmers are considerably higher (almost by 100 per cent) this year than a year ago. Not only the percentage of the wheat crop still available for sale is higher, but also the yield of the crop harvested last year was greater than that harvested in 1926. The percentage of the rye crop available for sale is slightly greater than on the corresponding date last year. The total crop harvested in 1927 was also greater than the one produced in 1926.

BAKERS VISIT KANSAS CITY

KANSAS CITY, MO.—M. Lee Marshall, chairman of the board of the Continental Baking Corporation, New York, is spending the week in Kansas City. He is attending the Republican national convention, and visiting millers and other friends. M. L. Molan, president of the Purity Bakeries Corporation, Chicago, also spent part of the week here.

SOUTHWESTERN BAKERS TO MEET

The Southwest Oklahoma and Northwest Texas Bakers' Association will meet in Frederick, Okla., June 19, it was decided at a recent luncheon attended by the association members in Altus. Neal Ward, of Hollis, Okla., secretary of the organization, has announced his intention to extend an invitation to the association for a meeting to be held soon in Hollis.

TO COMBAT RUST

Winnipeg, Man.

A SUGGESTION that all important bodies in Canada pass resolutions urging the dominion government to offer a prize of $1,000,000 to any person or persons who could provide an adequate check to the ravages of rust in the wheat fields of western Canada was made by T. R. Deacon, a Winnipeg delegate to the fifty-seventh annual convention of the Canadian Manufacturers' Association held on board the St. Lawrence en route from Montreal to Quebec City, last week. He pointed out that a reasonable estimate of the loss from rust yearly would place the amount in excess of $25,000,000 in western Canada alone, and the prize would therefore be only a small fraction of one year's loss. The convention decided to refer the problem of rust prevention to the executive committee and to empower it to support any movement undertaken by any other body to have the dominion government further encourage research work.

HEAD OF CEREAL CHEMISTS ANNOUNCES COMMITTEEMEN

MINNEAPOLIS, MINN.—Committees appointed last week by C. E. Mangels, recently elected president of the American Association of Cereal Chemists, are as follows:

Members of the executive committee, as reported elsewhere in this issue: M. A. Gray, chairman, Leslie R. Olsen, Rowland J. Clark, and G. L. Alexander.

Baking committee: C. G. Harrel, chairman, A. A. Towner, Dr. R. C. Sherwood, W. L. Heald, Mr. Clark, Dr. Emily Grewe, Dr. C. B. Morison, L. D. Whiting and Dr. M. J. Blish.

Dr. Blish is chairman of the committee on methods of analysis. Serving with him are Dr. C. H. Bailey, F. A. Collatz and A. E. Treloar.

The employment committee consists of Dr. Morison, chairman, and M. D. Mize.

On the Osborne Medal committee are R. A. Gortner, chairman, C. L. Alsberg, A. W. Alcock and R. W. Stark.

Mary M. Brooke is chairman of the committee on methods of testing cake and biscuit flours, of which the members are Dr. W. H. Strowd, A. A. Schaal, J. M. Gillette, A. W. Meyer, V. E. Fisher and Mr. Alexander.

The publicity committee, of which Mr. Whiting is chairman, consists of Mr. Clark, Dr. C. O. Swanson, F. Micka, and Paul Logue.

With A. A. Jones, chairman of the membership committee, are L. E. Leatherock, Bert Ingals, C. B. Kress, W. A. Richards, Rolfe Frye, Mr. Alcock and C. P. Newell.

The question committee consists of A. R. Sasse, chairman, S. L. Lawellin and Mr. Meyer.

R. W. Mitchell and Mr. Lawellin constitute the history committee.

The committee on flour specifications, of which Mr. Collatz is chairman, consists of Dr. Bailey, Mr. Olsen and J. T. Flohil.

Dr. D. A. Coleman is chairman of the special committee on the book of methods, assisted by R. K. Durham and Mr. Mize.

The committees on the 1929 convention program and on local arrangements will be announced later.

HERMAN F. WRIGHT MILLS ORGANIZED IN ILLINOIS

ST. LOUIS, MO.—The organization of the Herman F. Wright Mills, Inc., has been announced by Herman F. Wright, who for the past several years has been connected with the Saxony Mills, St. Louis. He has been engaged in the milling and grain business for 20 years, and has had experience in all territories.

The organization which Mr. Wright has formed is a $50,000 corporation and has acquired the 250-bbl mill at Reily Lake, Ill. This is a new, modern mill, and has room for the addition of another 250-bbl unit. There is an 18,000-bu grain elevator in connection with the mill, which will be ready for operation by the beginning of the new crop year.

The operation of the plant will be in charge of J. Fred Wright, a cousin of Herman F. Wright, the president and general manager of the business. The former Mr. Wright was previously connected with the Wright Roller Mills, Dongola, Ill.

Mr. Wright will maintain the general offices of the mill in the Merchants' Exchange Building, St. Louis.

FLOUR AND BREAD PRICES AGAIN HIGHER IN FRANCE

PARIS, FRANCE.—Following the government announcement to the effect that wheat crop conditions for the current campaign were dubious, the consultative departmental committee of the Paris district announced, as from May 31, a rise in the price of bread flour from about $9.80 to $9.95 per 220 lbs. Concurrently, the price of the kilo loaf of bread has been raised about one-fifth of 1c, which, considering the French are ostensibly such heavy bread eaters, makes the cost of the weekly basket of provisions, as the standard by which living costs are reckoned, somewhat heavier than for some months.

THE·NORTHWEST

ROBERT T. BEATTY, NORTHWESTERN EDITOR

118 South 6th St., Minneapolis, Minn.

Correspondents at Duluth-Superior and Great Falls

Cable Address: "Palmking"

MINNEAPOLIS

Spring wheat flour bookings last week showed a slight improvement over the preceding seven-day period. At that, however, they were meager and disappointing. Buyers refuse to become excited over the fluctuations in wheat, and are disposed to wait. The more important consumers and distributors have their near-by wants covered. The others, which include numerous small and medium-sized bakers, are contracting for flour only as they need it, and for reasonably quick shipment.

No Heavy Trading.—It is becoming more and more evident that there is not going to be any heavy trading. The buyers are watching closely the growing wheat crop. New winter wheat offerings will be on the market soon, and this precludes any buying beyond immediate needs.

Shipping directions, while not heavy, are, on the whole, satisfactory. Mills, with demand light, are giving more attention to cleaning up old contracts than they are to new bookings.

Clears Less Active.—Clears are much less active than they have been. It is reported that some mills, in their anxiety to prevent accumulations, are naming prices on both first and second clear under the prevailing market. In the main, however, quotations are held fairly firm.

Export sales are confined largely to small lots of patents to Latin America.

Nominal quotations by Minneapolis and outside mills for flour in carload or round lots, 60-day shipment, f.o.b., Minneapolis, per 196 lbs:

	June 12	Year ago
Short patent, 98-lb cotton	$7.90@8.40	$8.30@8.45
Standard patent	7.60@8.10	7.95@8.05
Second patent	7.40@7.70	7.65@7.85
Fancy clear, jute*	6.90@7.10	7.25@7.35
First clear, jute*	6.10@6.40	6.40@6.55
Second clear, jute*	4.25@4.80	4.60@4.90
Whole wheat	7.70@7.90	7.20@7.40
Graham, standard	6.75@6.90	6.75@6.95

*140-lb jutes.

SEMOLINAS

Macaroni manufacturers are working on old contracts, and are paying little attention to fresh offerings of semolinas. Durum mills report sales as extremely light, and do not look for any improvement during the remainder of this crop year. Directions are slow and mill operations light. No. 2 semolina is quoted at 3⅞c lb, bulk, f.o.b., Minneapolis; standard, 3¾c; special grade, 3⅝c; No. 3 semolina, 3½c.

In the week ending June 9, nine Minneapolis and interior mills made 53,699 bbls durum products, compared with 39,709 in the previous week.

MINNEAPOLIS MILLS IN OPERATION

Of the 26 Minneapolis mills the following 16 were in operation June 12:

Atkinson Milling Co.'s mill.
Everett, Aughenbaugh & Co.'s mill.
King Midas Mill Co.'s mill.
Minneapolis Milling Co.'s mill.
Northwestern Consolidated Milling Co.'s A and F mills.
Pillsbury Flour Mills Co.'s A (one half), A South, Anchor, Palisade and Phoenix mills.
Washburn Crosby Co.'s B, C (one half), E, F, G and rye mills.

MINNEAPOLIS FLOUR OUTPUT

Output of Minneapolis mills, with comparisons, as reported to The Northwestern Miller:

	Weekly capacity bbls	Flour output bbls	Pct. of activity
June 3-9	460,800	215,905	47
Previous week	460,800	187,310	41
Year ago	460,800	173,958	38
Two years ago	529,200	189,921	36
Three years ago	522,000	157,505	30
Four years ago	564,600	219,923	39
Five years ago	561,100	239,985	42

Direct export shipments by Minneapolis mills were 6,471 bbls last week, 810 in the previous week, 2,919 a year ago, and 1,457 two years ago.

OUTSIDE MILLS

Flour output by interior mills in Minnesota, including St. Paul, North Dakota, South Dakota, Montana, and Iowa, as reported to The Northwestern Miller, with comparisons:

	Weekly capacity bbls	Flour output bbls	Pct. of activity
June 3-9	315,900	162,998	52
Previous week	364,500	170,036	47
Year ago	440,700	191,132	46
Two years ago	424,890	222,476	52
Three years ago	433,890	209,407	48
Four years ago	426,690	223,000	52
Five years ago	347,700	125,076	36

Flour output and foreign shipments of northwestern mills, outside of Minneapolis and Duluth, in barrels:

Week ending	No. mills	Capacity	Output 1928	Output 1927	Exports 1928	Exports 1927
May 12	73	71,450	232,860	211,823	5,825	3,488
May 19	68	67,250	199,610	196,716	6,146	1,086
May 26	72	70,700	218,589	213,122	5,071	5,794
June 2	59	60,750	170,036	158,096	286	736
June 9	52	52,650	162,998	168,413	540	979

CROP YEAR OUTPUT AND EXPORTS

Flour output and foreign shipments by mills of Minneapolis, St. Paul and Duluth-Superior, also by "outside" mills in Minnesota, North and South Dakota, Montana and Iowa, from Sept. 1, 1927, to June 9, 1928, with comparisons, in barrels (000's omitted):

	Output 1927-28	Output 1926-27	Exports 1927-28	Exports 1926-27
Minneapolis	10,435	8,799	60	89
St. Paul	347	444	27	23
Duluth-Sup.	820	700	...	...
Outside	9,100	8,594	188	118

GRAFTON ROLLER MILL CO. AFFAIRS

The trustee of the defunct Grafton (N. D.) Roller Mill Co. has filed with the district court his second report. He has collected $17,643 and paid out $1,278. The remaining accounts receivable are either disputed or against debtors not financially responsible. The trustee asks for authority to abandon interest in a surety bond for $5,000 payable to and in possession of the board of railroad commissioners, which was deposited for protection of storage ticket holders. He also recommends that preferred claims for labor, amounting to $2,438, be paid, but that no dividend on general claims be paid at this time, for the reason that they are out of proportion to the money on hand. A hearing on the trustee's report will be held in the federal building at Grand Forks, June 21.

NOTES

A. J. Oberg, manager of the Christian Mills, Minneapolis, left June 12 for New York.

The Big Diamond Mills Co. is now represented in Kentucky by Marvin P. Evans, of Louisville.

J. A. Timmerman, Mandan, N. D., has purchased a membership in the Minneapolis Chamber of Commerce.

P. J. McKenney, manager of the St. Louis office of the Pillsbury Flour Mills Co., is in Minneapolis this week.

J. W. Beck, of the bakery division of the American Machine & Foundry Co., New York, was a Minneapolis visitor June 11.

E. H. Mirick has succeeded the late J. Woodbridge Avery as wheat buyer in Minneapolis for the Pillsbury Flour Mills Co.

Max M. Nowak, president of the Nowak Milling Corporation, feed manufacturer, Hammond, Ind., is in Minneapolis this week.

The Minnesota board of grain appeals will meet in Minneapolis, June 16, to establish Minnesota grades on all grain for the coming crop year.

C. A. Blood, freight traffic manager in New York for the Lehigh Valley Railroad, and E. J. Henry, western traffic manager, Chicago, of that road, visited this office on June 12.

W. R. Johnson, president of the George R. Johnson Co., flour distributor, Davenport, Cedar Rapids and Des Moines, Iowa, visited his mill connections in Minneapolis last week.

Clyde A. Weaver, president of the Weaver Co., mill supplies, Minneapolis, is attending the national Republican convention in Kansas City this week, as an alternate delegate from this district.

The many friends of J. F. Armstrong, sales manager for the Eagle Roller Mill Co., New Ulm, Minn., will regret to learn of the death of his estimable mother, at La Porte, Ind., on June 5.

R. P. Amo, district traffic manager at Minneapolis for the United States Shipping Board, has accepted the position of traffic manager for the Gulf States Terminal & Transportation Co., at Tulsa, Okla. He was tendered a luncheon, June 8, by the off-line traffic representatives at the Traffic Club. Mr. Amo is succeeded at Minneapolis by A. J. Casey, of Detroit.

Miss Frances Fitzgerald, of the office staff of the International Milling Co., Minneapolis, made a hole-in-one on the Glenwood municipal golf links here, June 8. Miss Fitzgerald is the only lady golfer to date to establish this record on the Glenwood course. She will be remembered by the cereal chemists, who attended the convention here last week, as the young lady in charge of the registration desk.

The Minnesota supreme court last week decided that the directors of the United States Cereal Co., which company built the Paramount mill in Minneapolis, are liable for the payment of $400,000 bonds issued by the company. The directors claimed that their signatures had been obtained under false pretenses by the president of the company, but the supreme court held that the false representation, if any existed, was not available as a defense.

DULUTH-SUPERIOR

Mills reported light interest in flour last week, and the amount of new business booked at a minimum. The trade sent in scattered offers much under the market level, which mills could not accept. The turns in wheat, while constant, were not sufficiently broad to catch this business. Buyers waited until the last minute, and then asked for immediate shipment. Mill prices on patents were lowered 25c; clear remained without change.

Buyers of durum who need mill supplies are only picking up small lots as required. A fair amount of old bookings are still to be filled, and the mill is steadily working this out.

Quotations, June 9, at Duluth-Superior, f.o.b., mills, per barrel, in 98-lb cottons:

	1928	1927
First patent	$7.50@7.85	$7.85@8.10
Second patent	7.00@7.30	7.60@7.85
First clear, jute	6.50@6.90	6.50@6.75
Second clear, jute	5.70@5.95	5.55@5.80

Duluth-Superior flour output, as reported to The Northwestern Miller:

	Output bbls	Pct. of activity
June 3-9	19,240	52
Previous week	9,655	26
Year ago	12,565	34
Two years ago	12,755	34

NOTES

C. C. Wyman, of C. C. Wyman & Co., Minneapolis, was in Duluth last week.

W. H. Watkins, of the Cleveland (Ohio) Grain & Milling Co., was in Duluth last week.

The pouring of concrete on the 3,000,000-bu annex to Great Northern elevator S at Superior will begin this week.

H. A. Jurgens, of the Quinn-Shepherdson Co., and F. C. Tenney, of the Tenney Co., Duluth grain men, are visiting the grain growing territory.

D. C. Moore, Duluth representative of the Pillsbury Flour Mills Co., and Hamilton Cook, of Gregory, Cook & Co., and their wives, are taking a lake trip.

E. M. White, of the White Grain Co., and C. F. Macdonald, secretary of the Duluth Board of Trade, accompanied the Duluth good will excursion trip to Fargo, N. D., June 7-8. F. G. CARLSON.

MONTANA

Mills report no improvement in the flour situation, with sales averaging from 30 to 40 per cent and in some cases 50 per cent of capacity, mostly for near-by shipment. As a whole, the flour trade seems to be pretty well loaded up. With the general trend of prices downward, flour buyers are more conservative than ever. Competition is very keen for what business there is and, consequently, prices obtainable leave much to be wished for.

Quotations, in car lots, cotton 98's, f.o.b., mill, June 9: first patent, $7.85 bbl; standard patent, $7.65; first clear, $7.25.

* *

It is rumored that plans are under way for the erection of a large, strictly modern bakery in Great Falls.

DAVID A. TENNANT, PIONEER MINNESOTA MILLER, DEAD

MINNEAPOLIS, MINN.—David A. Tennant, for many years identified with milling in Minnesota, died June 1 at his home in Fergus Falls. His end came as a complete surprise to his many friends and business associates. He had apparently been in his usual good health. He had just eaten dinner, and was smoking and listening to his radio when stricken.

Mr. Tennant was born in Rossie, N. Y., 72 years ago, and moved to Faribault, Minn., in 1879. He and his brother, the late Robert C. Tennant, of Lake City, first learned milling at Faribault in the mill of F. A. Bean, Sr., who is now president of the International Milling Co., Minneapolis.

Afterward, Mr. Tennant operated mills at Northfield and Dundas, Minn. Later, he ran the mill at Cannon Falls, but in 1899 he moved to Fergus Falls, where he bought the Otter Tail mill. Shortly thereafter, in company with W. B. Windsor, he took over the Fergus Falls mill and organized the Fergus Flour Mills Co. He and Mr. Windsor later bought control in the mill at Fargo, N. D., and in 1912 they bought the Globe Mills at Perham. Four years ago Mr. Tennant disposed of his milling interests when the Fergus Flour Mills Co. was absorbed by the Red River Milling Co., of Fergus Falls.

Surviving Mr. Tennant are two daughters, one being Mrs. William G. McLaughlin, wife of the manager of the Globe Flour Mills Co., Perham.

The funeral was held at Fergus Falls, June 9, and was attended by all the city officials, in recognition of Mr. Tennant's many years' interest in the civic affairs of his home town.

MINNESOTA WHEAT GROWERS HOLD ANNUAL CONVENTION

MINNEAPOLIS, MINN. — The annual meeting of the Minnesota Wheat Growers' Co-Operative Marketing Association was held here June 6-7.

Officers and directors for the coming year: president, George E. Johnson, Elbow Lake; vice president, Bernard Lien, Fergus Falls; directors, Oscar Lee, Hendrum, Norman F. Nelson, Montevideo, Jorgen Eide, Thief River Falls, D. Surprenant, East Grand Forks, Charles Bruer, Alberta, A. L. Dolney, Greenbush, and John G. Braun, Le Sueur Center. G. W. Connell, secretary, L. R. Roberts, treasurer, and R. T. Paradis, assistant secretary, were re-elected.

Two or three delegates were present from each of the nine districts.

The association, representing 12,000 farmers, resolved to unanimously indorse the McNary-Haugen bill, and demanded that the principles of that measure be included in the Republican platform.

The association will close its first five-year contract with the 1928 crop delivery. Its minimum sign-up goal for the next similar period is set at 300,000 acres, of which it already has 125,000.

The value of imports of foodstuffs into the United States in 1927 exceeded that of exports by 8 per cent. This excess of imports over exports was, however, considerably less than that in 1926.

NEWS NOTES FROM THE BAKESHOP

California

The French American Bakery, Puente, has remodeled an adjacent store for a retail shop.

The Geary Bakery, San Francisco, has opened a branch bakery at Twenty-fifth Avenue and California Street.

Russell W. Egan and Henry L. Fine have opened the California Pastry Bakery at 343 South First Street, San Jose.

W. E. Wittman has opened the White Swan Bakery, 5044 York Boulevard, Los Angeles.

Idaho

F. L. Snyder has purchased the bakery at Council from John Nelson.

Marcus Friedel has opened the Blue Ribbon Bakery, 144 North Arthur Avenue, Pocatello, as a pastry shop.

The Jerome (Idaho) Bakery, Frank Wagner, proprietor, has been closed through attachment by creditors.

Smith's Bakery, South Broadway, Blackfoot, has opened a retail department.

Illinois

The firm style of Peller Bros., Inc., 3639 West Harrison Street, Chicago, has been changed to Peller Pie Co.

Frank Ebbs, who formerly operated a bakery at Corbondale, will re-enter the baking business at Grayville.

James Robertson has purchased the Lincoln Bakery, 1431 Charles Street, Rockford.

Frank H. Kleschen has opened a bakery at Broadway and Eleventh Street, Rockford.

The K. & M. Baking Co., Vandalia, which was purchased some months ago by the Purity Baking Co., Pana, has changed its firm style to Purity Baking Co.

Indiana

The H. A. Perrey Baking Co., East Maumee Avenue, Fort Wayne, is building a new plant.

Remodeling and the addition of much new equipment to the Dietzen Bakery, Kokomo, has been completed.

The stockholders of the Madison (Ind.) Baking Co. recently met with the object of increasing the company's capitalization. All agreed to subscribe an extra sum. A production report showed the plant in better condition than ever before, and the overhead lessened by the addition of increased machine facilities.

Iowa

P. J. Siert has opened a bakery at Akron.

C. W. Waltz has sold the Cresco (Iowa) Bakery to Hugh Malone.

C. A. Bosley has purchased the Home Bakery, Lake View.

C. G. Boyce has discontinued the Maxwell (Iowa) Bakery.

Mrs. Frances De Loss has repurchased the Blue Ribbon Bakery, Estherville, which she sold to Taylor & Ferry about one year ago. She will be assisted in the business by her son and daughter.

Paul Sayers, Swea City, has leased his bakery to C. R. Eshmore until Jan. 1, 1929.

North Carolina

Jones Bros., bakers, Greensboro, will build a plant 100x160 at Winston-Salem, located at Marshall, Walnut and Academy streets.

The North Carolina branch of the Great Atlantic & Pacific Tea Co., with headquarters at Charlotte, recently awarded contracts for the construction of a four-story warehouse at 900 West Hill Street, to contain about 30,000 square feet and cost approximately $75,000.

The Rowan Grocery Co., wholesale, Salisbury, N. C., has moved to a new location between Main and Church streets.

Barrett's Hamlet (N. C.) Steam Bakery is reported bankrupt.

North Dakota

H. T. Tvedt has purchased the bakery of C. M. Emerson, Bowbells.

H. Borrud will erect a one-story building, 44x110, to house his wholesale bakery and distributing business at Williston. His present quarters will be continued as a retail bakery. The new building will cost $15,000.

The City Baking Co., James & De Tienne, proprietors, has opened a bakery at Watford City.

G. E. Thompson has opened a bakery on the grounds at North Chautauqua (P. O., Devils Lake).

Charles Rott has opened the City Bakery, Hebron.

A. E. Nelson succeeds Frank Murray in the ownership of the City Bakery, Larimore.

H. Carlson has bought the Auslander bakery at Minot. In future it will be known as the Purity Bakery, Inc. For many years Mr. Carlson was in the baking business at Devils Lake.

Ohio

A. Singer will build an addition to his bakery at 2416 Bridge Avenue, Cleveland.

H. E. Richardson has opened a bakery at Sugarcreek.

A crowd of approximately 10,000 attended the formal opening of the new bakery of the Kroger Grocery & Baking Co., 457 Cleveland Avenue, Columbus, on May 20. The bakery has been named the Columbus Pantry. Its capacity is 20,000 loaves of bread daily. Cakes and crackers also are made. The plant is equipped with a 75-foot traveling oven, giant high-speed mixers, an egg candling plant and a banana ripening department. There are three cracker ovens.

The New System Baking Co., Portsmouth, gave a complete display of the process of producing bread and cakes at its bakery, 826 Gallia Street, during Achievement Week, which was celebrated by manufacturers and jobbers May 28-June 2.

Elver C. Hammond, baker, 73 Parsons Avenue, Columbus, has filed a petition in bankruptcy, listing liabilities of $8,656 and assets of $3,300. He had been operating a retail bakery and confectionery for a number of years.

C. R. Bradford is now sole owner of the Bradford & Warren Baking Co., Niles, having purchased the interest of Mr. Warren.

The Splendid Baking Co., Cleveland, to conduct a general baking business and a retail bakery and confectionery, and also act as agent for other bakeries, has been incorporated by Peter Georges, Gust Ghekas, John G. Quetsch, Philip Botsakis and Gust Pappas.

The Bon Ton Baking Co., Middletown, has been incorporated by Don Burt, Mrs. Julia Burt and Frank P. Connaughton.

R. J. Gelston, Sunbury, has closed his bakery.

FLOUR AND FEED NOTES

The Model Flour & Feed Co., Springfield, Ill., has filed notice of dissolution.

The Edgerton (Ohio) Elevator Co. has installed a feed mill.

A feed mill has been installed in the Big Four Elevator, Mattoon, Ill.

The Farmers' Grain Co., Carlos, Ind., has installed a feed grinder.

N. G. Gandy & Co., Elizabeth City, N. C., have been incorporated for $100,000 to do a grain and feed business.

The Texas Stockmen's Supply Co., San Angelo, Texas, plans the establishment this summer of a plant for the manufacture of dairy feeds. H. O. Byrd is general manager.

J. W. Maxwell, 403 North Pine Street, Charlotte, Ga., head of the Piedmont Feed Mills, has announced that the company will erect a three-story plant for the manufacture of mixed feeds, to contain about 15,000 square feet of floor space. Contracts for new machinery have been awarded.

The Central States Grain Co-Operative, Inc., has been incorporated by Frank Arn, Bert R. Benner, Ward Martindale and Thomas McCoy, directors.

Edward Rose and Judge Daniel have opened a feed store at Clay City, Ky.

R. E. Harmon, formerly of Bridgton, Maine, has purchased the George Hanley store at Warren, Maine. He will conduct this as a general store, specializing in flour, grain and feed, on a strictly cash and carry basis. The business will be known as the Warren Grocery Co.

The Iowa Milling Co., Cedar Rapids, Iowa, Joseph M. Sinaiko, proprietor, 412 North Sixth Street East, will build a three-story addition of brick and hollow tile construction, to cost approximately $25,000.

J. M. Garst, in the flour and feed business at Indianola, Iowa, has purchased a garage building which he will remodel and use for his sales and storage rooms. His feed grinder will be moved to the new location.

Bernard Itse has purchased the feed mill of Conrad Ryan, Canton, Minn.

The grist mill owned and operated by L. S. Jacks, Romulus, Okla., has been sold to William Oplinger and moved to Macomb, where a feed grinding business has been opened.

John Neimier has purchased an interest in the Luverne (Iowa) Feed Mill.

O. R. Wyatt has purchased the produce and feed store of J. T. Sanders & Son, Sonora, Ky.

Fire recently destroyed the general store, feed mill and stock of farm implements of the Amston (Conn.) Grain Co. The loss was $50,000.

The Leedon Wholesale Grocery Co. and Duffy feed store buildings were included in the loss caused by a $400,000 fire at Oil City, Pa.

R. G. Neely has purchased the interest of his partner, Vol Click, in the Neely & Click Feed Store, Kerrville, Texas.

Shaffer Bros., feed dealers, Kent, Wash., prepare and mix feed to orders for farmers. They are said to have on hand approximately 100 formulas, each designed for the particular farmer desiring that mixture.

The feed mill at Monroe, Wis., is to be dismantled and moved to a new location.

W. J. Korbel plans to build a feed mill at Calmar, Iowa, and have it in operation next fall.

John D. Keifer, owner of a feed store at Elwood, Ind., recently purchased a grain elevator at Rich Station, west of Marion, Ind.

A bandit recently robbed the feed store of C. C. Sheaffer, 970 North Belmont Avenue, Indianapolis, escaping with approximately $80.

A feed mill is being built at Ada, Okla., by the Choctaw Cotton Oil Co. P. A. Norris is general manager of the company.

The Harlandale Feed & Seed Co., San Antonio, Texas, has been chartered. Incorporators are Henry Mueller, F. W. Huber and F. E. List.

The W. A. Browning Mills, Evansville, Ind., has installed new machinery.

Dallas, Texas, is to have a new feed mill, probably in time to aid in grinding the new crop. It will use the process perfected by L. F. Little, which is preparation of sweetened grain feeds for all live stock. C. D. Young will be manager. Another plant will be erected at Big Spring, Texas, with A. M. Young, father of C. D. Young, in charge.

The Sloan Feed & Fertilizer Co. has been organized and incorporated at Black Mountain, N. C., with a capital stock of $50,000, and is opening for business there.

The Riverside Milling Co. was recently incorporated at Jonesville, N. C., with $50,000 capital, by R. G. Smith, Elkin, N. C., C. C. Tharpe, Ronda, N. C., and others.

The Farmers' Elevator Co., Boxholm, Iowa, is putting in a feed grinder.

The Acme Mills & Elevator Co., Friend, Neb., has installed machinery for the manufacture of a line of sweet feeds.

Vermont

L. G. deLottinville has opened the deLottinville North End Bakery, Brattleboro.

The Modern Bakery, Inc., Barre, has been incorporated for $10,000 by Deane C. Davis, Avenire Fricassi and A. Martinetti.

Washington

The Pacific Bakery, Raymond, operated by Jack Gillies, burned recently.

The newly organized Holsum Bakery Co., Hoquiam, will occupy its new baking plant about Aug. 1. E. O. Myers has purchased an interest in the company.

The Nordic Baking & Importing Co., Inc., Seattle, has increased its capital stock to $50,000.

Menzo Robertson has purchased the equipment of the Arlington (Wash.) Bakery and installed it in the Shaw Building.

R. A. Lancaster has purchased the Elma (Wash.) Bakery from A. A. Torongo.

Watson's Bakery, Everett, is operated by J. Bruce Watson. Suit has been brought against him by Lyle Jaderholm, who is said to have held a one third interest, asking a decree dissolving partnership, an accounting of the firm's affairs, and a temporary receivership.

The Pacific Bakery, Long Beach, was one of several business houses destroyed by fire.

C. G. Brooks has opened the Redmond (Wash.) Bakery.

The California Bakery has opened at 2328 East Madison Street, Seattle.

Swanson's Bakery has opened at 7619 Sixth Avenue N. W., Seattle.

The Hillyard branch of the Silver Loaf Baking Co., Spokane, has been purchased by the Blum Bros. Baking Co. Members of this new firm are Paul and Jack Blum, brothers of Martin Blum, production manager of the Silver Loaf bakery.

W. J. Goeliner, Tacoma, has moved his Northwestern Bakery to 1919 Center Street.

L. Warmeng and A. Harby have bought the Enumclaw (Wash.) Bakery.

H. A. Gartner, Leavenworth, will move his bakery to the Freemont bridge district, Seattle.

The Superior Bakery, now at 4551 University Way, Seattle, will become a unit in the new retail market to be opened there.

The Barker Bakery, 225 West Main Street, Walla Walla, has completed ex-

Mrs. Harper's Home Bakery has moved to 2906 East Fifty-sixth Street, Seattle.

Wisconsin

S. R. Sorenson and Albert Johnson have purchased the Ripon (Wis.) Sanitary Bakery from Emil Behnke.

William McKowan has opened a bakery at 6924 National Avenue, West Allis.

Emil Mohr, baker, Sheboygan, and his grandson, will leave June 9 for a trip to Germany, where they will visit relatives. They will be gone about three months.

Jens Anderson has purchased the bakery at 2401 Tower Avenue, Superior, formerly known as Williamson's Bakery. Hereafter it will be operated as the Superior Home Bakery.

Katie Kaap has opened a home bakery at Lancaster.

The Chippewa Baking Co., Chippewa Falls, C. O. Lea, proprietor, has completed installation of its new Duhrkop oven. The old oven will be rebuilt for bread production.

Fred Bregge and Edwin Ferdon have purchased the Mattoon (Wis.) Bakery.

Herman Krueger, Jr., has opened a bakery at 170 Wallace Avenue, North Milwaukee.

J. H. Joyce has opened his new bakery at Rice Lake.

The A. F. Beckman Bakery, Wausau, recently was damaged by fire.

The Glidden (Wis.) Bakery has been opened by Joseph Lang.

Warren Travis has succeeded O. Stensland as owner of the Sparta (Wis.) Bakery.

THE SOUTHWEST

ROBERT E. STERLING, SOUTHWESTERN MANAGER

612-614 Board of Trade, Kansas City, Mo.

Correspondents at Atchison, Hutchinson, Oklahoma City, Omaha, Salina and Wichita
Cable Address: "Palmking"

KANSAS CITY

Moderate sized orders for flour for near-by shipment continue to be received by southwestern mills, the total volume of such business equaling about 30 per cent of the capacity of mills. None of these orders are for more than 10,000 bbls, and few of them approximate that figure. Current business is rather evenly divided between bakery and family trade.

Prices underwent small adjustments last week, despite the fluctuations in options. Cash wheat premiums remain firm and high. Bran recovered somewhat from the low point early in the week, but the sharp break still is an influence in strengthening flour quotations.

No New Crop Flour.—No sales of new crop flour were reported for the seven-day period ending June 9. A few inquiries were received, but mills in the Southwest are showing no disposition to quote a new crop basis for distant deliveries, and buyers are not interested in such purchases at current levels.

Production Better.—While much complaint is heard from mills about slow shipping instructions, production shows a good gain. Mills are running approximately at the five-year average for this time of the crop period. Operations in Kansas City last week averaged 70 per cent of capacity, which is a fairly satisfactory figure, considering the light volume of old orders left on mill books. Kansas City output is over 30,000 bbls more than a week ago, when a holiday cut production below normal.

Export Business Limited.—Practically no European sales are being made from the Southwest, and inquiry is at a minimum. A few small lots were sold to the West Indies and other Latin American markets, but the total was not large and participation was not general. While demand for clears is limited, the supply apparently is not burdensome, and stocks are not being pressed for sale.

Prices.—Quotations, June 9, basis cotton 98's or jute 140's, Kansas City: hard wheat short patent $7.95@8.40 bbl; 95 per cent, $7.40@7.90; straight, $7.30@7.50; first clear, $5.70@6.30; second clear, $4.65@5.20; low grade, $4.50@4.70.

Production. — The first table below shows the flour production and rate of activity of 63 representative southwestern mills, exclusive of Kansas City, Wichita, Omaha, St. Joseph, Salina and Atchison. Additional tables give the production and activity of principal milling centers in the territory.

63 REPRESENTATIVE MILLS

	Weekly capacity bbls	Flour output bbls	Pct. of activity
June 3-9	315,360	166,834	53
Previous week	315,360	150,852	48
Year ago	330,660	171,720	52
Two years ago	335,310	196,788	59
Five-year average			53
Ten-year average			47

KANSAS CITY

June 3-9	197,700	138,404	70
Previous week	197,700	105,536	53
Year ago	175,500	143,271	81
Two years ago	151,500	88,570	58
Five-year average			69
Ten-year average			56

WICHITA

June 3-9	62,400	33,394	53
Previous week	62,400	32,335	52
Year ago	62,400	51,070	82
Two years ago	62,400	33,839	54

ST. JOSEPH

June 3-9	47,400	22,988	48
Previous week	47,400	20,289	43
Year ago	47,400	35,009	74
Two years ago	47,400	47,197	99

SALINA

June 3-9	46,800	23,299	50
Previous week	46,800	35,103	75
Year ago	46,200	28,449	62
Two years ago	35,400	25,462	71

ATCHISON

June 3-9	30,900	26,329	85
Previous week	30,900	26,306	85
Year ago	29,700	22,251	75
Two years ago	29,400	24,113	82

OMAHA

June 3-9	27,300	23,383	85
Previous week	27,300	16,991	62
Year ago	27,300	20,555	75
Two years ago	27,300	19,521	71

PERCENTAGE OF CAPACITY SOLD

Reports of about 70 mills to The Northwestern Miller showed sales represented per cent of capacity as follows:

June 3-9	36
Previous week	23
Year ago	25

Of the mills reporting, 1 reported domestic business active, 6 fair, 7 quiet, 4 slow, and 15 dull.

Direct export shipments by all reporting mills outside of Kansas City were 11,374 bbls last week, 10,584 in the previous week, 17,265 a year ago, and 13,398 two years ago.

NEW WHEAT CONTRACTING

Kansas City grain dealers report indifference on the part of interior dealers in the contracting of new wheat in advance of harvest. Not more than 25,000 bus, it is estimated, have been contracted by Kansas City interests. Foreign buyers are equally complacent, and less has been contracted for shipment at the gulf than in several years, indicating that a larger percentage of the early movement will be to terminal markets. Bids are 3c over the Kansas City July for No. 1 hard for June shipment, 2c over for the first half of July and 1c over for the last half of July, delivered in Kansas City. The bid is for 11 per cent protein, with 1c premium for each one quarter of one point protein up to 14 per cent, and 1c discount for each one quarter of one point below. There is 1c discount for each pound under 60 down to 56.

RATES ON GRAIN AND PRODUCTS

Railroad representatives and shippers interested in changing the present rule concerning rates on shipments of grain and grain products passing through Kansas City to points beyond met in Kansas City recently to discuss the matter with a view to later action. The following mill representatives attended: E. W. Kidder, Morrow-Kidder Milling Co., Carthage, Mo; C. S. McGinness, N. Sauer Milling Co., Cherryvale, Kansas; R. Morgenstern, H. D. Lee Flour Mills Co., Salina, Kansas; John Hogan, Abilene (Kansas) Flour Mills Co; W. G. Brown, Security Flour Mills Co., Abilene; F. E. Martin, Robinson Milling Co., Salina, Kansas; E. E. Maschall, Shellabarger Mills & Elevator Co., Salina; D. L. Mullin, Kansas Milling Co., Wichita; C. C. Reynolds, Wichita Flour Mills Co; R. E. Hughes, New Era Milling Co., Arkansas City, Kansas; William Casey, Rea-Patterson Milling Co., Coffeyville; W. E. Cowley, Walnut Creek Milling Co., Great Bend, Kansas.

NOTES

Don C. Graham, flour broker, was in Omaha, Neb., part of last week.

The Sales Managers' Association of Kansas City has re-elected R. H. Montgomery, of the Washburn Crosby Co., chairman.

J. D. Evans, sales manager for the Rea-Patterson Milling Co., Coffeyville, Kansas, visited in Kansas City last week before leaving on an eastern trip.

Laurence B. Chapman, president of the Walnut Creek Milling Co., Great Bend, Kansas, is on an eastern trip which will take him to most of the principal markets in that territory. He will return late in June.

Otto Bresky, of the Seaboard Flour Corporation, Boston, is spending this week in Kansas City as the house guest of Harry A. Sterling, president of the Rodney Milling Co. Mr. Bresky is attending the Republican national convention.

Oliver L. Steele, flour broker, of Birmingham, Ala., is visiting his mill connections in the Southwest, stopping at Arkansas City, Kansas, and Greeley, Colo. He also spent a short time in Kansas City.

A. L. Taggart, president of the Manor Baking Co., returned early last week from the East. J. W. Carence, of the same company, returned the latter part of the week from Oklahoma City and Tulsa, Okla., where he attended openings of two new bakeries.

J. R. Fair, who has been representing the Kansas Mill & Elevator Co., Arkansas City, Kansas, in Arkansas, has been made field director of sales for the company in the southeastern states, with headquarters in Memphis, Tenn. He is moving his family this week from his former home in Tonganoxie, Kansas, to Memphis.

Bryce M. Mace, Jr., manager of the Kansas City office of the Bureau of Foreign and Domestic Commerce for the past year, has been transferred to London, Eng., where he will be assistant commercial attache of the foodstuffs division of the United States Department of Commerce. Mr. Mace has become well acquainted with export flour and grain men in the Southwest.

Robert T. Browne, who has been manager of the Hastings, Neb., office of the Simonds-Shields-Lonsdale Grain Co., Kansas City, has resigned to become associated with the Vanderslice-Lynds Co. in the latter's cash grain department. He has been elected to membership in the Kansas City Board of Trade, and will represent his company on the trading floor of the exchange.

During the Republican national convention which is being held at present in Kansas City, R. L. Nafziger, president of the Schulze Baking Co., is entertaining as house guests Will Rogers, the humorist, and Harvey S. Firestone, Jr., son of the president of the Firestone Tire & Rubber Co. of Akron, Ohio. All three of the men are spending much of their spare time on the polo field at the Nafziger farm near Kansas City.

One of the most important of European flour millers visited in Kansas City and other southwestern points a short while last week. He is Jean Ernest Vilgrain, head of the Grands Moulins de Paris, and during the World War in charge of food administration for France. He is a practical miller, and is much interested in studying American methods. M. Vilgrain left Kansas City for the Pacific Coast. After visiting there he plans to return east by way of Minneapolis.

H. M. Bainer, director of the Southwestern Wheat Improvement Association, will leave early next week for a wheat inspection trip which will take him over most of the state of Kansas and into part of Oklahoma. He probably will be accompanied by some one from the Kansas State Agricultural College and also one or two grain men. Mr. Bainer, from previous trips through the state, predicts a possible yield of 175,000,000 bus wheat for Kansas if weather continues favorable.

A. E. Mosier, Kansas City manager for the Allis-Chalmers Mfg. Co., Milwaukee, returned recently from a trip to Sonora, Mexico, where he inspected the properties of the Lucky Tiger Mining Co., of which he is a director. His trip back brought him through much of the wheat raising territory of Kansas in daylight. Mr. Mosier says crop prospects are the best he has seen in the many years he has resided in the Southwest, and that, having never been more than 10,000,000 bus wrong on his estimates of Kansas wheat crops, he does not hesitate to predict a total of 175,000,000 to 180,000,000 bus this year.

TRIBUTE TO JOHN A. THEIS

ECHOES from the huge pit gong on the trading floor of the Kansas City Board of Trade sounded four times at noon, June 6, stilling immediately the strident voices of traders. For a full minute men who, a few seconds before, had been shouting and gesticulating nervously bowed their heads in quiet. Again the gong sounded, and trading was resumed. The occurrence was a tribute to John A. Theis, of the Davis-Noland-Merrill Grain Co., and president of the Kansas City Board of Trade. Mr. Theis died suddenly at St. Paul, June 2, and was buried June 6 in Kansas City. Both active and honorary pallbearers consisted of some of his former associates in the grain business. Under the rules of the Kansas City Exchange, J. J. Kraettli, of the J. E. Rahm Grain Co., will, as first vice president, automatically be moved up to the presidency. Confirmation of this promotion will be made by the directors of the Board of Trade within the next fortnight. R. A. Jeanneret, of the Moore-Seaver Grain Co., will advance from second to first vice president, and a second vice president will be appointed by the directorate.

OKLAHOMA

Millers report conditions unchanged in the flour market, both as to prices and to volume of sales. Domestic sales are small, as are exports. Quotations, June 6: hard wheat short patent flour, $8@8.10 bbl; soft wheat short patent flour, $8.20@8.30; standard patent, $7.50@7.60.

NOTES

The Powell Grain Co. is building a $15,000 structure at Duncan, Okla.

The new Farmers' Co-operative elevator has been completed at Walters, Okla. B. W. Russell is manager.

The Marshall (Texas) Mill & Elevator Co., capital stock $250,000, has been incorporated by Frank Davis, I. Hochwald and G. Edmonson.

The Laughlin Grain Co. has sold its interest in Minco, Okla., to the El Reno Mill & Elevator Co. William Penwright, manager of the Laughlin company, will go to Calumet, Okla.

The board of city development of Plainview, Texas, is inviting firms engaged in feed grinding to meet with the board to discuss the manufacture of mixed feeds out of alfalfa. Plainview is the primary producer of alfalfa in northwestern Texas.

Karl E. Humphrey, El Reno, Okla., miller, and president of the state chamber of commerce, has issued invitations to 1,000 Oklahoma business men, representing commercial and professional activities, to meet with the directors and committeemen of the state chamber in Oklahoma City, June 7. The conference will deal with traffic, industrial and agricultural problems.

ATCHISON-LEAVENWORTH

Flour sales were slightly better last week. Mills reported bookings in some instances running 75 per cent of capacity, being made up for the most part of fill-in orders from the small trade. A few large buyers were in the market for bargain lots. More interest has been displayed in export business, and prices for new crop flour are being requested. Shipping directions are very light, and mills are having difficulty in operating.

NOTES

O. W. Stoltz, of the Stoltz Brokerage Co., Ottumwa, Iowa, was in Atchison last week.

H. T. Shaeffer, sales manager for the Blair Milling Co., Atchison, returned last week from a two weeks' vacation.

NEBRASKA

There was little new business in flour last week. The trade continued bearish, and mills reported practically no new sales. Shipping directions on old contracts continued satisfactory.

* *

Arrivals of wheat last week were very light. Mills were not so keen for proteins as they were a few weeks ago. Most of them are pretty well stocked up.

LEIGH LESLIE.

Additional southwestern flour market reviews on page 1063.

DOMINION OF CANADA

A. H. BAILEY, CANADIAN MANAGER
1001 Lumsden Building, Toronto 2, Ont.
Correspondents at Montreal, Winnipeg and Vancouver
Cable Address: "Palmking"

TORONTO

One cannot say more of the domestic spring wheat flour market than that it is one of moderate volume. Travelers are sending in their usual mixture of orders every week, but the total is less than average. Bakers are taking springs steadily on their contracts, and there is nothing special in that department. Most mills are running on sales made some weeks ago, and there is enough business in sight to keep up the present scale of operation until some time in July. Prices have not changed since a week ago. Quotations, June 9:

	June 9	June 2
Top patent	$8.20	$8.20
Patent	7.95	7.95
Second patent	7.60	7.60
Export patent	7.40	7.40
First clear	6.50	6.50
Graham flour	6.90	6.90
Whole wheat flour	6.90	6.90

All per barrel in bags of 98 lbs. delivered. f.o.b., cars, Ontario points, less 10c bbl for cash, plus cartage if used.

Ontario Winters. — Ontario winter wheat flour is offering in small quantities at country milling points, but for the most part prices are higher than buyers will pay. Prices are 5@10c above the level of a week ago. Quotations, June 9: bulk lots export patent, in buyers' bags, seaboard freights, $6.45 bbl; Montreal, in secondhand jutes, $6.70; Toronto, $6.40@6.50; best quality soft patents $8.40 bbl, seconds $7.90, in 98-lb new jute bags, mixed car lots, delivered, Ontario points; blended springs and winters, best grade $7.60 bbl, seconds $7.40, in 98-lb jutes, mixed cars.

Exporting.—Mills report a light demand from British and foreign sources. While there is a fair business of this kind on their books, new contracts do not replace shipments. Although ocean freight rates on flour were reduced 2c per 100 lbs over a week ago, the differential between flour and wheat is still so great that Canadian mills are heavily handicapped in competing for trade. Compared with a week ago, prices are 6d higher. On June 9 mills were asking 37s 6d per 280 lbs, c.i.f., London or Liverpool, June-July seaboard loading, while buyers' bids were 36s 6d.

Sales of Ontario soft winter wheat flour for export are so light that it is hard to discuss conditions in terms of actual sales. The fact is in this branch of the flour trade there will be nothing of any consequence doing until new crop grain is ready for grinding. Sellers should get 42s 6d per 280 lbs for June-July seaboard, for shipment to London, and 3d over to Glasgow.

NOTES

The annual meeting of shareholders of the Maple Leaf Milling Co., Ltd., Toronto, is expected to be held this month.

The Goderich Elevator & Transit Co., Ltd., which owns and operates a modern concrete elevator in Goderich, Ont., is putting out an issue of capital stock for public subscription.

The Reliance Grain Co., Ltd., is building a 3,000,000-bu addition to its elevator at Fort William. The work is progressing rapidly, and it will be ready for operation on the new crop.

The Eastern Bakeries, Ltd., St. John, N. B., is increasing its capital stock to $600,000. The new issue is to be used in the erection of a large baking plant in that city and the purchase of plants at other points in the maritime provinces. John R. Gale is president of this concern.

R. J. Megaw, Goderich, is on a motor trip to the Pacific Coast. His wife accompanied him, and they have some idea of settling in Vancouver, where they lived for a time after Mr. Megaw's retirement from his former position as superintendent of the Western Canada Flour Mills Co., Ltd.

The N. Bawlf Grain Co., Ltd., is offering $2,000,000 of 6½ per cent cumulative preferred and redeemable stock to the public. The issue price is par or $100. This is one of the oldest concerns in the West, and has a large investment in terminal and interior elevators. The purpose of the present financing is to retire a first mortgage bond issue.

T. G. Crawford is succeeding J. F. Maclaren, Toronto manager of the Ogilvie Flour Mills Co., Ltd., who is retiring. Mr. Crawford has served the Ogilvie company in various territories since he first joined its staff, and has latterly been assisting Mr. Maclaren in Toronto and near-by parts of this province. He is well equipped for the new duties, and this will be a popular appointment.

The Canadian Manufacturers' Association is taking an interest in the question of rust prevention. At a recent meeting one member suggested that the dominion government might reasonably offer a prize for the discovery of an effective method of combating this parasite. The association has authorized its executive committee to support any movement for the encouragement of scientific investigation of rust.

The minister of railways for Canada has obtained from the House of Commons an appropriation of $6,500,000 to be spent in completing a railway from La Pas, Man., to Fort Churchill, on Hudson Bay. One half of this will be spent on the railway and the remainder on port facilities. There still are 154 miles of railway to be laid before Churchill is reached. Interest in this project is increasing, and there are many in Canada who believe it will afford a solution of some of the problems of western farmers whose wheat is destined for export to European markets.

Wheat Pool Conference

REGINA, SASK.—The conference of wheat pool representatives which was held here this week, at which delegates from English and Scottish co-operative societies were also present, developed some highly interesting discussions on matters relating to pooling and co-operation. The co-operative societies evidently are in an inquiring mood, as among other things they asked:

"Do you farmers, with your vast resources and economic pool merchandising organization, propose to destroy our co-operative activities in the United Kingdom by putting prices of your products beyond our means?" The pool members said they had confidence that the co-operative movements in the United Kingdom and Canada were working in harmony, and that the interests of co-operative activities among industrial workers of the Old Country were identical with those of the farmers of Canada.

Efficient service, widening of the field of usefulness, making agriculture more profitable, improving the quality of agricultural products and an effort to regulate the world acreage of different crops were the objectives which the Hon. John Bracken, premier of Manitoba, suggested should be sought.

Parliament Discusses Protein Tests

OTTAWA, ONT.—On several occasions, during the session of the Canadian Parliament now closing, the House of Commons has got into discussions as to the advisability of introducing some sort of protein test into the wheat grading system of this country. The House showed on every occasion a willingness to listen to whatever any one might feel like saying in favor of this proposal, but was obviously not seriously impressed, nor were the members generally ready to consider such a change without first having for their guidance a considerably broader assemblage of facts than any of those who spoke in favor of the idea were able to present. As a matter of fact, the arguments in favor of a protein test being made the foundation of the Canadian grading system were practically all derived from a single source, and that a none too reliable one. Before any such proposal is adopted in Canada there will have to be a most searching official inquiry as to its merits and feasibility, having regard to all the circumstances in which the trade in Canadian wheat is now carried on. In the meantime, the parliamentary committee on agriculture has recommended further inquiry.

April Canadian Exports of Flour

TORONTO, ONT.—The official figures showing exports of flour from Canada, as recently given in this correspondence, were disappointing. In only two months of the crop year did the total exceed 1,000,000 bbls. These were November and March. April showed a falling off, compared with March, of almost 50 per cent, and it is not believed that the May returns will be much above those for April. In spite of these and other somewhat gloomy facts concerning the present state of this trade, the crop year so far has been considerably better in foreign trade results than its predecessor, with some prospect that its concluding three months will prove much better than last year. At any rate, the orders on the books of some milling companies give ground for that hope.

Elevator Construction in Canada

THAT expansion in grain acreage and production in western Canada is anticipated, is evidenced by the active construction of new elevator space through the country and at terminals. In 1926-27 there were in Canada altogether 4,558 elevators of all kinds, with a storage capacity of 284,818,000 bus, and that same season 142 others were added, which increased the space by 3,071,640 bus. The present season will witness further expansion at Fort William, Port Arthur and Vancouver, not to speak of the building program in the country, which is largely in connection with the wheat pools.

The Canadian lakehead ports have now room for 72,540,000 bus grain, but another 9,000,000 or 10,000,000 bus space will be available by the time the 1928 crop is harvested. Montreal has increased its storage space to over 15,000,000 bus, and Vancouver will have accommodation for nearly 12,000,000 this year, apart from the elevator at Prince Rupert and new construction at Victoria and New Westminster, which will bring British Columbia's grain storage space up to about 16,000,000 bus.

Country elevators for the provincial wheat pools are going up fast, and there will be 1,294 operated by the three provincial pools at the beginning of August. In Manitoba 84 new houses are being built, which will bring the total to 143; the Saskatchewan pool is putting up about 125, and will then have 851 in operation; the Alberta pool is constructing about 140, to bring the total in that province to 300.

WINNIPEG

Demand for flour continues very slow, particularly in export circles. Some of the larger mills were on part time last week. A little business in low grade straights was done with the Orient, and some was sold for fall shipment, but the volume was not large.

For delivery between Fort William and the Alberta boundary, top patent springs were quoted, June 9, at $9.15 bbl, jute, seconds at $8.55, and first clears at $7.55; cottons, 15c more; Pacific Coast points, 50c more. Bakers patents were quoted at $7.70, car lots, basis jute 98's.

NOTES

A. A. Ryley, manager of the Canada Bread Co., Ltd., has gone east on a business trip.

James Stewart, president of the Maple Leaf Milling Co., Ltd., Toronto, left last week for that city and Montreal.

James Richardson, grain, went east to speak on "Immigration" at the convention of the Canadian Chamber of Commerce, held in Quebec.

An outbreak of fire involved the stock warehouse of the Canada Biscuit Co., Ltd., last week, and smoke and water caused considerable damage to the $60,000 worth of stock on hand.

For the 10 months ending May 31, farmers in western Canada delivered 386,901,822 bus wheat, compared with 326,905,819 in the corresponding period the previous season. Daily deliveries at country points continue to exceed 500,000 bus.

MONTREAL

Spring wheat flour remained unchanged last week, buyers showing very little interest. Domestic quotations, June 7, carloads, jutes, net cash, track, Montreal rate points: first patent, $8.20 bbl; patent, $7.95; second patent, $7.60; export patent, $7.40.

Winter wheat flour remains steady at $6.50@6.60 bbl, secondhand jutes, car lots, f.o.b., Montreal rate points.

Export conditions are reported much better.

NOTES

J. J. Page, general manager of the Western Canada Flour Mills Co., Ltd., Toronto, was in Montreal on June 7, visiting the company's local office.

The traffic committee of the Canadian National Millers' Association held a meeting at the association offices, Montreal, on June 6. E. V. Morphet, of the Quaker Oats Co., Peterborough, presided.

Newfoundland as a Market for Flour and Feed

By George R. Williams

ST. JOHN'S, N. F.

THE island of Newfoundland, Britain's oldest colony, is one of Canada's best customers as a cash buyer of flour, feeds, oats and hay. The capital city of St. John's, through which port the bulk of grain products are imported, has about 40,000 population, and is the center of commercial activities. It is located on the east coast, 60 miles north of Cape Race. About 360,000 bbls flour (in wood of 196 lbs net) are used in the colony annually.

Housekeepers all bake their own bread, Newfoundland women being famous for the high quality of their home made loaf. Practically all the flour used for this purpose is the very highest Manitoba patent. Every Newfoundland home buys flour by the barrel, and bread is usually baked twice weekly.

There are two large biscuit bakeries in St. John's which supply practically all the soda crackers and fancy biscuits used in the island. These concerns also manufacture a large quantity of ship biscuit, known as "hard-tack," and which is used by the fishermen. These factories are modernly equipped, and make 40 or 50 varieties of plain and sweet biscuits. The flour for this purpose is also imported from Canada, principally 90 per cent or straight winter wheat being the grades used. It is imported in 140-lb jutes. All buyers pay sight drafts for their supplies.

The following Canadian banks have branches in Newfoundland: Bank of Montreal, Bank of Nova Scotia, Canadian Bank of Commerce and the Royal Bank of Canada. The former three have in recent years purchased or erected modern buildings, indicating that they have decided to have permanent branches in Newfoundland. The Bank of Montreal has 5 branches, the Bank of Nova Scotia 12, and the Royal Bank of Canada 5, in various towns along the coast and in the interior of the island to facilitate business. The only other banks doing business are the Newfoundland government savings banks, organized solely to accept deposits on interest.

The Newfoundland customs tariff on flour and grain is the same on Canadian flour and feeds as on any other country's exports. There are no preferential clauses dealing with British Empire products, excepting a special agreement with Jamaica under which a rebate of 20 per cent is given on the duty of goods imported from that colony.

Newfoundland, for the fiscal year ending June 30, 1927, imported the following quantities of flour, grain and feedstuffs:

	From		
	Canada	England	U. S.
Flour, bbls.	318,406	40	49,754
Feed, bags	36,096	14,059	19,991
Oats, bus	577,622	4,400	2,000
Hay, tons	8,294	...	...
Straw, tons	83	...	3
Oatmeal and rolled oats, lbs	293,393	13,466	763,300
Corn, bags	8,799	5,373	202
Corn meal, bbls.	8,097	6,404	2,165

For many years Newfoundland bought its supplies of hard wheat flour from the mills of Minneapolis and St. Louis, but since 1916 the trade has been secured and held almost exclusively by Canada. This is of course due to the cheapness of Canadian wheat, and no doubt lower freight transportation also has been a factor. Cargoes of flour may be loaded at the Canadian mills and delivered direct to the docks at St. John's by steamer. First class freight transportation facilities are easily obtainable by Canadian mills for the export of their grain products to Newfoundland.

The Canadian Steamship Lines, Canadian National Steamships, and the North American Lloyd Line maintain regular sailings from Montreal to St. John's, while the Farquhar Steamship Co. has a regular service from Halifax. This line also maintains a freight service to west coast ports direct from Halifax. The Clark Steamship Co. also takes passengers and freight by its vessels from Montreal to Corner Brook. The Canada & Newfoundland Traders' Steamship Co., of Halifax, N. S., maintains a freight service from St. John, N. B., Halifax and Charlottetown, P. E. I., to St. John's. In addition to these sailings the Red Cross Line steamers Nerissa and Silvia leave Halifax, N. S., every Tuesday morning, alternately, for St. John's with passengers and freight. Furness, Withy & Co., Ltd., also maintain a fortnightly service with two passenger and cargo steamers from Halifax to St. John's, going from thence to Liverpool, Eng. Besides these facilities the Newfoundland government railway maintains a steamship connection three times weekly from North Sydney, Cape Breton, to Port aux Basque (a trip of about 10 hours at sea).

Canadian grain products are distributed by railway and coastal steamers all around the coast of Newfoundland and north to Labrador from Port aux Basque, situated in the southeastern corner of the island.

The heavy buying of grain products usually occurs when the article is on the bargain counter. In Newfoundland this usually takes place in March, April and May, but the largest orders are placed for the fall trade in August, September and October. In the spring large quantities go out to the fishermen in "supplies on credit," and in the fall, when these schooners return to discharge the results of their catch of codfish, the vessels load up with flour, grains and general cargo, and return to their homes along the coast for the winter season.

The bulk of the flour sales in Newfoundland are made by the Ogilvie Flour Mills Co., Ltd., Lake of the Woods Milling Co., Ltd., Maple Leaf Milling Co., Ltd., St. Lawrence Flour Mills Co., Ltd., Western Canada Flour Mills Co., Ltd., and the Quaker Oats Co., all of which have selling agents in St. John's. At the end of May, flour stocks were believed lower than usual, and Newfoundland will soon be buying again. Quotations to St. John's are always made cash against documents, cost, insurance and freight.

The market does not respond quickly when prices advance as they have done this spring. Importers holding stocks often sell ex-warehouse at prices lower than the cost of replacement.

Imports this year at the port of St. John's up to the end of May follow, compared with 1927:

	1927	1928
Flour, bbls	57,811	43,093
Rolled oats, bbls	1,518	2,133
Oats, bus	160,678	71,073
Hay, tons	1,450	223

These figures show a short importation of flour, which must be made up quickly. The large stock of oats held over in warehouse from last year's supplies has kept the market fairly well supplied. The high price of this grain has restricted consumption. The hay crop of 1927 having been good, supplies from Canada this season have not been needed, as they were last year.

Newfoundland imported in the past two years a considerable quantity of Argentine corn, and corn meal milled from Plate corn by English millers, as well as quantities of cracked corn and scratch feed for poultry. Several shipments of English bran also were received this year, owing to the fact that Canadian mills had none to offer Newfoundland customers.

Business conditions in Newfoundland are bright. Merchants are all looking forward to a record trade, due to increased interest in mining development, the pulp and paper trade and the new departure of buying fish for export in cold storage steamers direct to the best markets. An increased production of cod liver oil and cod liver meal is also anticipated, the latter being a new product and exported to Canada and United States mills for mixing with poultry feeds. It is hoped that this year will see a large increase in the circulation of cash, which means a larger volume of trade on a sound commercial basis.

The Movement of Canadian Grain by Canadian Ports

IN connection with the aspirations of Quebec, St. John, Vancouver and other ports to a status of greater importance as grain shippers, as indicated in the increased elevator accommodation and other facilities being provided or planned for the immediate future, a phase for consideration in the future greater grain movement anticipated will be the possible retention of a greater share of the traffic in Canadian grain for Canadian ports. The larger share of developments under way or projected are solely concerned with the movement of Canadian grain, and since there would appear to be no immediate prospect of Canadian ports losing any appreciable part of that substantial volume of United States grain they are accustomed to ship, the benefits should be substantial.

At present United States grain, harvested earlier than the Canadian, moves out in substantial volume to Europe by way of the St. Lawrence waterway during the period of open navigation. The movement is purely a seasonal one, and the advantages of the St. Lawrence route would seem to be impressing themselves more forcibly upon United States exporters. All Canadian grain, however, is unable to reach the seaboard in sufficient time to make use of the St. Lawrence before the close of navigation. Much is held over until spring or early summer, but a great volume makes use of the United States Atlantic ports. Lack of storage facilities has apparently been no inconsiderable factor in diverting the grain and limiting the amount to go out by Canadian winter ports, and with this situation remedied there is every reason to expect that a greater traffic will result.

Usually a substantially larger volume of Canadian grain leaves the continent by United States ports than American grain by Canadian ports, but what would appear to be a growing appreciation of the advantages of the St. Lawrence route is tending to equalize this. Approximately 50 per cent of Montreal's grain handlings in the past season, for instance, were United States grain. In the reciprocity of handling, however, as exhibited in the relationship of Montreal to the nine leading Atlantic ports of the United States the republic still apparently has an advantage. While in the year 1927 Montreal shipped 92,130,918 bus United States grain, the nine leading Atlantic ports of the United States together shipped 128,752,605 bus Canadian grain. The curious economic anomaly exists of Montreal in its short season shipping more American grain than do these nine great United States ports in their 12 months of operation, while more Canadian grain finds outlet through these United States channels than by way of Montreal.

EFFECT OF WELLAND CANAL

In 1927 the nine leading United States Atlantic ports shipped a total of 218,861,439 bus grain, of which 128,752,605 were Canadian and 90,108,834 American. Montreal in its season exported 183,963,840 bus, of which 91,832,931 were Canadian and 92,130,918 American. Incidentally these figures disclose that Montreal fell only 34,897,590 bus short of the total grain handlings of these nine United States Atlantic ports in 1927, further consolidating the great Canadian port's position as the greatest grain shipper in the world. Actually, direct shipments from Montreal in its seven months' season were 75,000,000 bus ahead of exports from any one of the United States Atlantic ports in their 12 months' active period. Against Montreal's total exports of 183,963,840 bus stand New York 109,561,000, Galveston 27,695,029, Baltimore 23,866,896, Philadelphia 21,680,801, Portland 14,735,614, New Orleans 13,992,393, Boston 4,745,810, and Norfolk and Newport News 2,583,895.

All indications would seem to point to the fact that the tendency of the future will be for Canadian grain to pass out to a greater extent by Canadian ports, and plans are being made to this end. An important factor in altering the balance of grain shipments in the future will be increased handlings at Vancouver, which are this season already 50 per cent higher than any previous season, and other Canadian ports on the Pacific Coast, where elevator accommodation is being increased and other facilities provided in anticipation of steadily greater traffic. Quebec grain exports created a record last season, and this port looks forward to receiving a steadily increasing volume each year. Movement to St. John and Halifax is appreciably heavier, with greater tonnage expected in the future.

The opening of the new Welland Canal in 1930, it is expected, will be another factor in augmenting the grain traffic of Canadian ports. Prescott has been recommended as the most advantageous location of a grain terminal between Lake Erie and the eastern end of navigation by engineers engaged to investigate the merits of several situations, and it is understood their recommendations have been adopted by the government. Grain will be brought down into Lake Ontario in 600 foot "lakers" and will be transshiped for transportation through the St. Lawrence outlet. The construction of an elevator there will obviate the possibility of discharge at ports in New York state. The movement of grain out of Montreal will be greatly facilitated, as transportation over the 115 miles separating the two points will involve nothing more than a switching proposition. It is likewise probable that a large quantity of grain will be moved down by rail. Demands for types of grain at Montreal can be met by Prescott within six hours.

EDITOR'S NOTE.—The foregoing is taken from "Agricultural and Industrial Progress in Canada," a monthly review published by the department of colonization and development of the Canadian Pacific Railway.

Canada—Flour Exports by Ports

Exports of wheat flour from Canada from Aug. 1, 1927, to April 30, 1928, by ports of exit, in barrels of 196 lbs:

	To		
From—	U. K.	U. S.	Others
Halifax, N. S.	32,311	.....	455,715
North Sydney, N. S.	.....	.....	29,537
Lunenberg, N. S.	.....	.....	2,770
St. John, N. B.	585,474	.....	464,099
Woodstock, N. B.	.....	176	.....
Quebec, Que.	17,881	.....	22,981
Montreal, Que.	880,650	.....	1,048,707
Three Rivers, Que.	.....	.....	545
St. John, Que.	35,380	.....	16,870
L. Megantic, Que.	7,028	.....	8,448
Coaticook, Que.	190,460	3	22,735
St. Armand, Que.	26,428	.....	3,162
Sherbrooke, Que.	.....	5	.....
Athelstan, Que.	9,529	.....	71,804
Sutton, Que.	59,627	.....	46,925
Cornwall, Ont.	357	.....	1,262
Niagara Falls, Ont.	266,352	2,792	1,105,892
Bridgeburg, Ont.	188,339	.....	640,670
Prescott, Ont.	8,835	.....	75,885
Emerson, Man.	.....	261	.....
North Portal, Man.	.....	34	.....
Vancouver, B. C.	72,418	2,457	1,044,201
New Westminster, B. C.	.....	.....	32,063
Totals	2,381,069	5,728	5,094,271

Fort William-Port Arthur Grain Movement

Receipts and shipments of grain at Fort William and Port Arthur from Aug. 1, 1927 and 1926, to April 30, 1928 and 1927, in bushels:

RECEIPTS

	1927-28	1926-27
Wheat	209,156,332	218,642,002
Oats	8,718,468	11,944,295
Barley	18,721,276	32,450,800
Flaxseed	2,362,548	2,929,195
Rye	8,939,259	6,913,993
Corn	7,726	34,529

SHIPMENTS

By lake—	1927-28	1926-27
Wheat	166,581,259	187,747,091
Oats	2,982,614	6,855,825
Barley	14,518,195	26,226,341
Flaxseed	1,796,417	2,835,411
Rye	7,143,474	5,223,142
By rail—		
Wheat	5,093,154	13,303,947
Oats	4,201,768	2,884,020
Barley	2,928,096	5,041,187
Flaxseed	211,020	91,757
Rye	45,006	65,020
Corn	49,982	34,528

It is estimated that this season's wheat crop in Chile will be over 20 per cent above the average production of recent years.

On April 30, stocks of flour in Egypt totaled 195,015 sacks, compared with 202,283 on March 31 and 198,414 on Feb. 29.

CHICAGO·DISTRICT

ARTHUR S. PURVES, CHICAGO MANAGER
SIGURD O. WERNER, Assistant Manager
166 W. Jackson Boulevard, Chicago, Ill.
Cable Address: "Palmking" Correspondent at Milwaukee

CHICAGO

Business last week was somewhat improved, although sales of any size were few. The general opinion is that buying will not improve much until new crop flours begin to move. A few mills are quoting new crop prices, but buyers fail to show any interest.

Spring Wheat Flour.—Brands from the Northwest were in best request last week. More sales of single cars were made, and a few bookings of 1,000 and 2,000 bbls were reported. Most buyers, however, seem satisfied to take flour only as needed. Shipping directions are fair.

Hard Winter Flour.—A few southwestern mills have furnished local brokers with new crop prices. These are not much below old crop, however, and buyers were not much impressed. Also the brokers do not think it is advisable to sell new crop as yet, and no sales are reported. New crop prices received last week were around $6.65@6.85, jute, for 95 per cent patent. Business on old crop flour was very light, sales being few and mostly in less than car lots.

Soft Winter Flour.—Occasional single cars made up the business in soft winters last week, mainly for quick shipment. Most users have sufficient to carry them for a while, and those who need supplies only take small amounts.

Flour Prices. — Nominal quotations, June 9, car lots, basis Chicago, patents in cotton 98's and clears in jutes: spring top patent $7.25@7.80 bbl, standard patent $6.90@7.50, first clear $6.10@6.70, second clear $4.40@5; hard winter short patent $7.20@7.85, 95 per cent patent $6.90@7.50, straight $6.75@7.20, first clear $5.75@6.40; soft winter short patent $7.30@8.30, standard patent $7.35@7.75, straight $7.15@7.50, first clear $6.25@6.75.

Durum.—Prices of semolinas went up ⅛c early last week, but later dropped back to the same level as during the previous week. Demand continued quiet, as the trade is well taken care of, and the macaroni business is slowing up, as is usual at this time of the year. There was some buying done, but sales were widely scattered, and a light demand is expected during the remainder of this crop. On June 9 No. 2 semolina was quoted at 4c lb, bulk; standard semolina, 3⅞c; No. 3 semolina, 3⅝c; durum patent, 3⅝@3⅞c; special grade, 3¾c.

Output of Chicago mills, as reported to The Northwestern Miller:

	Output bbls	Pct. of activity
June 3-9	29,645	74
Previous week	28,995	72
Year ago	34,000	85
Two years ago	37,000	92

NOTES

J. Duerringer, field man for the Hales & Hunter Co., underwent an operation for appendicitis on June 2.

C. C. Krehbiel, manager of the Moundridge (Kansas) Milling Co., was a recent visitor to this market.

M. Lee Marshall, chairman of the board of the Continental Baking Corporation, was in Chicago, June 7. He left here for Kansas City.

Frank M. Rosekrans, of the Bertley Co., millfeeds, has returned from a 10 days' vacation in northern Wisconsin and a trip to Minneapolis.

B. B. George, of the Procter & Gamble Co., Cincinnati, was in Chicago most of last week. While here he attended the confectioners' meeting at the Stevens Hotel.

Colonel Ashby Miller and W. E. Doty, of the Washburn Crosby Co., Minneapolis, stopped in Chicago last week on their return from an eastern trip. W. J. Morris, of this concern's New York office, also visited Chicago last week on his way to Minneapolis.

B. A. Eckhart, president B. A. Eckhart Milling Co., left for Kansas City on June 10 to attend the national Republican convention there. Mr. Eckhart is a delegate at large from Illinois.

J. Juul, sales manager for the Southwestern Milling Co., Inc., Kansas City, visited his company's local offices on June 9. He was returning from an eastern trip and from attending the Pennsylvania bakers' meeting at Wernersville.

C. G. West, Canadian representative of the Exact Weight Scale Co., Columbus, Ohio, was in Chicago, June 5, and attended the exposition of the National Confectioners' Association. He left that evening for Minneapolis, to be present at the operative millers' annual meeting.

J. S. Stone, Chicago manager of the Northwestern Consolidated Milling Co., Minneapolis, who was seriously injured in an automobile accident on May 26, expected to leave the Henrotin Hospital this week. He is making better and more rapid progress than was at first expected, but will be confined to his home for a few weeks.

John E. Stephan, for many years an active member of the local flour trade, and formerly manager of the flour department of the Durand, McNeil, Horner Co., is recovering from injuries received when struck by an automobile on June 2. He was waiting for a street car when hit, and during the past week was confined to the Ravenswood Hospital. He expects to return home this week, but will not be able to be active for some time.

G. A. Carpenter, federal judge, on June 6 overruled the motion of the United States government to dismiss L. A. Fitz, grain exchange supervisor, and G. Q. Johnson, United States district attorney, as defendants in the injunction proceedings brought by the Bartlett-Frazier Co. and other Chicago brokerage houses against the Department of Agriculture to prevent examination of books of grain brokers for individual trades of over 100,000 bus.

MILWAUKEE

There was very little booking of spring wheat flour last week. It is too late in the season for a break to be interesting to the trade. Some are in the market with small orders, but the big purchasers do not care to buy. Every one is watching the crop reports to see what the growing conditions in the Northwest are and what the future has in store for the new crop. The decline last week amounted to 15@25c. Quotations, June 9: fancy city brands hard spring wheat patents $6.75@8.05 bbl, straight $6.45@7.75, first clear $6.15@7.10 and second clear $4.85@5.90, in 98-lb cotton sacks, car lots, f.o.b., Milwaukee.

Southwestern mill representatives are calling on the trade regularly, but the orders they receive are practically negligible. Buyers are waiting for the new southwestern wheat to get into the market. A few small ones are in the market with minor orders. The margin between southwestern and northwestern varieties continues very small, the lower limits of southwestern being greater than those of the Northwest. The decline of 15@25c failed to attract any business. Quotations, June 9: fancy brands hard winter wheat patents $7.20@7.75 bbl, straight $7.15@7.50 and first clear $6@6.35, in 98-lb cotton sacks, car lots, f.o.b., Milwaukee.

NOTES

Receipts of feed in Milwaukee during May totaled 5,075 tons, against only 371 a year ago, while shipments were 9,460, compared with 10,238 last year.

Receipts of wheat in May were 108,490 bus, against 174,240 last year, and shipments 62,625, compared with 230,780.

Flour receipts in May topped those of a year ago by a wide margin, being 257,250 bbls, against 198,384 in 1927. Shipments this year were only 8,050 bbls, against 29,931 a year previous.

Offerings and receipts of the five leading cash grains were greater in Milwaukee market in May than they were a year previous. Receipts aggregated 2,691,760 bus, compared with 2,609,490, while shipments totaled 4,034,022, against 2,381,715.

L. E. MEYER.

TEXAS COTTONSEED CRUSHERS

DALLAS, TEXAS.—D. C. Johnson was elected president of the Texas Cottonseed Crushers' Association at the recent annual convention at Corpus Christi. T. J. Harrell, Fort Worth, was named vice president, and George H. Bennett, Dallas, secretary-treasurer. At the convention it was declared the cottonseed products in Texas in 1927-28 were worth $23,000,000 more than for the previous season, but that the industry is not on the sound basis it should be.

TEXAS GROCERY STORE CELEBRATES

DALLAS, TEXAS. — The Walker-Smith Grocery Co., jobber, Brownwood, Texas, recently celebrated its thirty-third anniversary. It operates branch houses in 11 cities in western, central and southern Texas. J. A. Walker, one of the founders of the business, is president.

DODGE CONTEST WON BY BAKER

C. C. Michael, a bakery salesman of Colorado Springs, Colo., recently won the first prize of $1,000 in a slogan contest sponsored by Dodge Bros., Inc., for their new Victory Six car. Mr. Michael, who uses a Dodge vehicle in his daily work, chose the slogan: "Making a Good Name Better."

The New Merchant Marine Bill of the United States

WASHINGTON, D. C.

PRESIDENT Coolidge's approval of the Jones-White bill marks the beginning of a new chapter in the story of the American merchant marine, especially of its status as a problem. The act becomes effective at once, and is expected greatly to stimulate the shipbuilding industry and increase foreign shipping operations under the American flag. Whether these results will be permanent nobody knows, for the plan, like all others that have been tried during the last half century, is admittedly experimental.

The new act makes no fundamental change in the national policy set up as to shipping in the merchant marine act of 1920. The essence of that policy is a declared purpose that the country should have a merchant marine capable of carrying the "greater part" of its foreign commerce. The new act reaffirms that and other declarations in the old law. It buttresses the Shipping Board, through which the government's operations as to shipping have functioned since the war. It will be the board's duty to apply most of the measures provided for in the new law, and the act portends indefinite continuance of the board as a ship operating as well as a regulatory and promotive body.

The present act follows the bill worked out by Chairman White, of the House committee on merchant marine and fisheries, rather than the one originally passed by the Senate at the behest of Senator Wesley L. Jones, of Washington, chairman of the Senate commerce committee. A central idea is to offset lower shipbuilding costs abroad with lower interest rates through government credit.

It increases the Shipping Board's loan fund from $125,000,000 to $250,000,000, and allows it to be utilized on very liberal terms. Loans may be made for the construction of new ships or the remodeling and reconditioning of old ones. The interest rate shall be the lowest paid by the government on Treasury obligations at the time advances are made—at present about 3½ per cent. Loans may run for 20 years, and they may be in amounts equal to as much as three fourths of the building cost of vessels for which they are advanced; they can be granted on ships to be used in either foreign or coastal trade. Payments on loans keep up a revolving fund from which further loans may be made.

Thus, if plentiful and cheap money can achieve it, the revival of American flag shipping should be assured. In view of the fact that American vessels have a statutory monopoly of the coastal trade, it is curious that the loan provisions of the act should have been made applicable to coastal shipping. But this may expedite the building for primary coastal service of some vessels that ultimately will go into the foreign trade.

The provisions that should have greatest effect on foreign trade are the ones providing mail subventions that amount to substantial subsidies for desirable types of carriers in over-sea trades. The subventions vary in accordance with the speed and capacity of vessels. It is possible for a transpacific carrier to get from the government, for carrying mail only, $50,000 to $100,000 on account of each voyage.

The Shipping Board is permitted to continue the operation of vessels now owned by the government, and can sell any of these only by the vote of five of the board's seven members. This probably means that few sales will be made, and that the government will continue to operate ships on a large scale indefinitely.

These governmental measures, together with the world's large surplus of shipping facilities and shipbuilding activity abroad, mean, it is believed, a continuance of low shipping rates for a long time. For the last six years ocean carrying rates have averaged only slightly above the pre-war range, which is one reason why American privately owned shipping has tended to recede. However, it has been picking up noticeably during the last year and a half. Shipping interests as a rule supported the principal features of the new act.

The government has spent, since 1917, more than $4,000,000,000 on shipping (though most of it is chargeable to war costs) and, aside from investment losses, it has been spending $25,000,000 or more annually in recent years on carrying out a merchant marine policy that was far from successful. The new program may be more effective, but it does not promise any reduction of public cost. In fact, the new law will double, and probably treble, the net public contribution made annually toward the building up of an American merchant marine.

THEY MUST BE DRUG STORES

Baltimore, Md.

UNUSUAL trade combinations in Baltimore have been found here by the Department of Commerce as a result of its distribution census, Dr. Julius Klein, director of the Bureau of Foreign and Domestic Commerce, recently reported in an address before the local Retail Merchants' Association at its annual banquet. For example, women's hosiery is being sold in 17 different kinds of stores — including bakeries, confectioneries, meat markets and soft drink parlors. Bakeries also handle tobacco, he reported, as do gasoline stations, shoe stores, meat markets and automobile accessories stores. Dr. Klein said that $369,000,000 were spent in retail establishments here last year, in stores numbering 11,127, 88 per cent of which were operated independently, the remainder being chain stores.

The Trend of the Movement of Hard Winter Wheat to Market

By E. A. Stokdyk

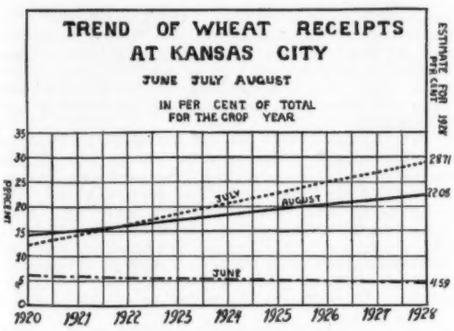
Kansas State Agricultural College

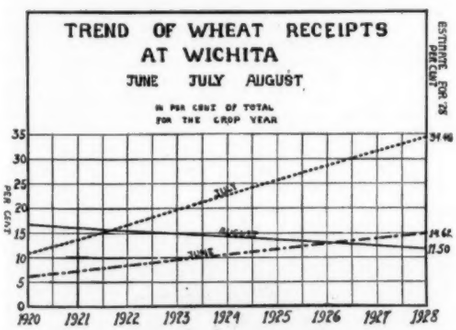
SEVERAL factors influence the movement of the hard winter wheat crop. Chief among these are prices, storage space in the territory where yields are heavy, local bank credit, competing work on the farm interfering with marketing, car supplies, the distance to market, weather conditions and the use of combine harvesters.

A dominating factor in the past few years has been the increased use of the combine. Its effect is too well known to elaborate upon it. The writer merely wishes to present statistically and graphically the trend of the movement, in order that we may better visualize the situation. With the trend clearly in mind, perhaps we will be able to make a more accurate forecast of the probable movement during the coming crop year. It will be noted that such a forecast is made. The method will be explained below.

Table I presents a summary of the carload receipts of wheat at Kansas City by months for the crop years 1920 to 1927, inclusive, as reported by the Kansas City Daily Grain Review. From these data the per cent of receipts for each month of the year was calculated. It is immediately apparent that the proportion of the receipts received in July and August has been increasing since 1920, while the proportion received in later months has been decreasing. The average for each month for the eight years is shown under a separate heading. The average is, however, of little significance, because it combines years when receipts were small with those when they were large. The trend of receipts is more important, for it measures to some extent the changes that are responsible for the shift in the proportion of the receipts that move at a particular period of the year. The trend was calculated statistically by the method known as the method of least squares. This is, however, of interest only to those interested in statistical methods. After the trend was determined, the forecast for 1928 was calculated.

The reasoning behind this procedure was that the influence which tended to increase the proportion of





receipts at harvest time is still operative; namely, the increase in the number of combines. That this is true is evidenced by the fact that a report from Delphos, Kansas, states that one dealer sold 52 combines about a month prior to harvest. As a matter of fact, it is more than likely that receipts will exceed the estimated percentages. It is the writer's opinion that, barring adverse weather conditions at harvest time, the estimates for July and August at Kansas City are low.

With an estimate of the per cent that is likely to move during the harvest period it is possible to gain some idea of the number of carloads that are likely to be received on the market.

The distribution of the winter wheat crop is quite similar to that of 1924. In that year Kansas produced 153,738,000 bus, Nebraska 57,115,000, Oklahoma 54,874,000 and Colorado 21,030,000, or a total for the states adjacent to the Kansas City market of 286,757,000 bus. The May 1 estimate of the United States Department of Agriculture placed Kansas at 142,877,000, Nebraska 45,026,000, Oklahoma 51,844,000, and Colorado 12,764,000, a total of 252,511,000. This is approximately 87.5 per cent of the 1924 crop. In terms of carloads this would mean 58,657 cars at Kansas City. With this as an estimate, it is a simple matter to calculate the number of carloads that are likely to move to Kansas City each month during the year. The writer has used the May 1 crop report in figuring this, but now that the June report is available, this estimate can be corrected.

Table II presents data similar to Table I for the Wichita market. Here it is apparent that receipts in June have been increasing, while those in August have been decreasing. This market is in the heart of the combine territory, and one would expect such to be the case.

In estimating receipts at Wichita, the Kansas and Oklahoma crops in 1924 were used as a basis instead of Kansas, Oklahoma, Nebraska and Colorado, for the reason that the Wichita market is primarily influenced by Kansas and Oklahoma crops.

It is hoped that the data presented will be of some aid in attempting to gauge the movement of wheat to market. It is recognized that the estimates made are subject to many influences. They are presented merely as a basis for judgment.

Table I.—Carload Receipts of Wheat at Kansas City by Months

	1920-21		1921-22		1922-23		1923-24		1924-25		1925-26		1926-27		1927-28				
Month—	Carloads	Per cent of year's total	Carloads	Per cent of year's total	Carloads	Per cent of year's total	Carloads	Per cent of year's total	Carloads	Per cent of year's total	Carloads	Per cent of year's total	Carloads	Per cent of year's total	Carloads	Per cent of year's total	8-year average per cent	Forecast for 1928 †Per cent	Forecast for 1928 ‡Carloads
July	5,015	7.72	14,200	19.70	8,424	14.47	6,613	14.76	14,613	22.01	7,959	20.37	22,821	33.22	13,956	23.62	19.49	28.71	16,682
August	6,320	9.73	12,386	17.19	8,619	14.80	9,121	20.36	17,613	26.52	6,323	16.18	12,195	17.75	12,669	21.44	17.93	22.08	12,830
September	5,628	8.67	8,892	12.34	6,197	10.64	4,368	9.75	8,662	13.04	3,397	8.69	4,649	6.77	5,345	9.05	9.87	8.68	5,044
October	4,939	7.61	5,331	7.40	5,253	9.02	4,708	10.51	7,905	11.90	2,523	6.46	4,603	6.70	5,839	9.88	8.69	8.92	5,183
November	5,562	8.57	3,232	4.49	4,847	8.32	4,232	9.45	3,859	5.81	3,187	8.16	3,055	4.45	3,933	6.66	6.99	6.09	3,539
December	4,939	7.61	4,846	6.72	6,634	11.39	3,522	7.86	2,479	3.73	3,872	9.91	3,743	5.45	3,996	6.76	7.43	6.35	3,690
January	7,615	11.73	3,976	5.52	5,190	8.91	2,231	4.98	2,201	3.31	2,297	5.88	3,897	5.67	2,692	4.56	6.35	4.82	2,800
February	4,857	7.48	5,626	7.81	3,007	5.16	3,096	6.91	1,991	3.00	1,938	4.96	3,965	5.77	2,202	3.73	5.61	3.69	2,144
March	4,283	6.60	2,828	3.92	2,581	4.43	1,938	4.33	1,764	2.66	1,429	3.66	2,593	3.77	2,629	4.45	4.23	3.30	1,917
April	5,084	7.83	2,746	3.81	2,907	4.99	1,000	2.23	648	.98	1,332	3.41	1,706	2.48	1,759	2.98	3.59	1.57	912
May	5,447	8.39	3,964	5.50	2,290	3.93	1,953	4.36	1,721	2.59	1,395	3.57	2,904	4.23	1,492	2.53	4.40	2.15	1,249
June	5,241	8.07	4,033	5.60	2,285	3.92	2,014	4.50	2,950	4.44	3,423	8.76	2,575	3.75	*2,575	4.30	5.42	4.59	2,667
Totals	64,930	100.01	72,060	100.00	58,234	99.98	44,796	100.00	66,406	99.99	39,075	100.01	68,706	100.01	59,087	99.96	100.00	100.95	58,657

*Carloads received in June, 1927. †Based on secular trend of the eight years—in per cent. ‡Based on an 87.5 per cent crop in Kansas, Oklahoma, Nebraska and Colorado compared with 1924.

Table II.—Carload Receipts of Wheat at Wichita by Months

	1920-21		1921-22		1922-23		1923-24		1924-25		1925-26		1926-27		1927-28				
Month—	Carloads	Per cent of year's total	Carloads	Per cent of year's total	Carloads	Per cent of year's total	Carloads	Per cent of year's total	Carloads	Per cent of year's total	Carloads	Per cent of year's total	Carloads	Per cent of year's total	Carloads	Per cent of year's total	8-year average per cent	Forecast for 1928 †Per cent	Forecast for 1928 ‡Carloads
July	912	7.35	3,218	16.62	2,307	15.01	4,409	27.39	6,375	29.27	3,255	22.56	7,971	38.23	4,072	25.73	22.77	34.46	7,002
August	1,391	11.21	3,414	17.63	2,409	15.67	3,476	21.59	3,783	17.37	1,561	10.82	1,889	9.06	1,698	10.73	14.26	11.50	2,336
September	1,304	10.51	2,549	13.16	1,547	10.06	1,032	6.41	2,514	11.54	760	5.27	1,140	5.47	1,073	6.78	8.65	5.18	1,052
October	907	7.31	1,464	7.56	1,067	6.94	893	5.55	2,422	11.12	713	4.94	1,307	6.27	1,021	6.45	7.02	6.57	1,335
November	876	7.06	1,084	5.60	1,095	7.12	854	5.31	1,373	6.30	1,055	7.31	1,037	4.97	1,050	6.64	6.29	6.11	1,241
December	852	6.86	1,299	6.71	1,973	12.83	1,085	6.74	938	4.31	951	6.59	1,233	5.91	998	6.31	7.02	5.32	1,081
January	1,159	9.34	1,422	7.35	1,275	8.29	910	5.65	720	3.31	615	4.26	1,222	5.86	1,046	6.61	6.33	4.39	892
February	1,038	8.36	1,474	7.61	939	6.11	886	5.50	790	3.63	632	4.38	1,111	5.33	858	5.42	5.79	4.00	813
March	900	7.25	597	3.08	737	4.79	644	4.00	295	1.35	452	3.13	812	3.89	915	5.78	4.16	3.44	699
April	1,043	8.40	747	3.86	840	5.46	557	3.46	206	.95	317	2.20	467	2.24	718	4.54	3.89	1.68	341
May	954	7.69	901	4.65	518	3.37	562	3.49	479	2.20	299	2.07	937	4.49	661	4.18	4.02	2.65	538
June	1,075	8.66	1,196	6.18	666	4.33	790	4.91	1,882	8.64	3,818	26.46	1,723	8.26	*1,723	10.89	9.80	14.62	2,970
Totals	12,411	100.00	19,366	100.00	15,372	100.00	16,098	100.00	21,777	100.00	14,428	100.00	20,849	99.93	15,823	100.00	100.00	99.92	20,300

*Carloads received in June, 1927. †Based on secular trend of the eight years. Calculated by the method of least squares. ‡Based on a 93.3 per cent crop in Kansas and Oklahoma, compared with the crop year 1924 and forecast of per cent that will move each month.

Concluding Sessions of the Operative Millers and Cereal Chemists

By Robert T. Beatty and John P. Broderick

ONE of the largest gatherings ever assembled in trade history took place in Minneapolis last week, the occasion being the thirty-third annual convention of the Association of Operative Millers, the fourteenth annual convention of the American Association of Cereal Chemists and the fifth joint convention of the two. The last joint meeting was at St. Louis in 1925.

The convention committees of the two organizations are to be congratulated upon their well-laid preparations which enabled the business sessions and entertainment features to be run off with the utmost precision. Attendance at each of the business sessions was exceptionally heavy, indicating appreciation by the membership of the programs. A number of interesting papers were read at each of the conventions by men who thoroughly understood their subjects, and several discussions were conducted from the floor.

It was heartening, indeed, to observe the keen interest shown in the subjects which concerned them by these two important divisions of the breadstuffs industry. Reports of the first two days of the conventions appeared in The Northwestern Miller of June 6, and the remaining sessions are covered in the pages that follow.

Operative Millers' Meeting Unqualified Success

THE joint convention of the Association of Operative Millers and of the American Association of Cereal Chemists, held last week in Minneapolis, was an unqualified success. Aside from one session, both associations met separately. Thanks to the interest of the members themselves in their respective programs, and to the well-laid plans and untiring efforts of the local committees, both conventions moved smoothly and without interruption to the prearranged schedule.

The attendance was the best on record, more than 700 having registered when the books were closed.

The weather the first three days of the week was of the made-to-order variety, and in perfect accord with the program. The ladies were able to make their scheduled trips to Lake Minnetonka, the Automobile Club, boulevard drives, etc., while the millers visited the mills and other points of interest. On June 7 the weather was less favorable, but was not inclement enough to interfere with the program to any extent.

The millers and the chemists held separate sessions early on June 6. At the millers' meeting, the nominating committee made its report. After this there were numerous nominations from the floor for officers and for two members of the executive committee. The result was the election of the following: president, Charles E. Robinson, Ogden, Utah; vice president, E. C. Veeck, New Ulm, Minn; treasurer, W. C. Dunn, Independence, Mo. (re-elected). Directors: G. C. Ferguson, Lincoln, Neb., and P. C. Williams, Waco, Texas. The new officers were formally installed into office later in the week.

Health and accident insurance, and its effect on general economic conditions, was ably discussed by A. J. Alwin, secretary of the Minnesota Commercial Men's Association. He declared it more essential for the head of a house to have liability insurance than life insurance.

Mr. Anderson Present

The chemists then joined the millers, and President Howe called upon Sydney Anderson, president of the Millers' National Federation, for a few remarks. Mr. Anderson said he believed he was the world's champion convention attender, but never had he been present at a trade meeting where so much interest was taken in the proceedings and where the attendance was so representative. He congratulated the officers of the association on their ability to attract so many men to their business sessions, and to get them to discuss their problems so intelligently and so usefully. He also complimented the local committees upon the smooth manner in which the meeting was progressing.

Mr. Anderson said he was not quite so familiar with the work of the operative millers and of the chemists as he was with the merchandising end of the milling business, but that he read religiously the bulletins of both associations and made very good use of the knowledge obtained from them. He added: "We congratulate ourselves that your associations exist. We believe they are good for the milling industry as well as good for you. We believe they contribute much to the welfare and wellbeing of the industry as a whole.

"My contact lies more in the field of sales and distribution than in production. You gentlemen at times must be disappointed when you see the fruit of your labors dissipated by the sales department. Any sane selling policy must rest fundamentally on a sound conception of the quality of the product being sold. You are contributing magnificently to our knowledge of the quality and the uses of flour, and I only wish that the price obtained would more closely represent the quality of the goods you produce."

Mr. Anderson ended by presenting the greetings of the Millers' National Federation, saying: "We wish

Charles E. Robinson, of Ogden, Utah, Newly Elected President of the Association of Operative Millers

to co-operate with your associations in every way work of the operative millers' and chemists' associations. Mr. Beecher's message was printed in last week's issue of The Northwestern Miller.

Leslie R. Olsen, chief chemist for the International we can. We desire to see your membership increase, and your work increase in value, in usefulness and in scope. I congratulate you again upon your convention, your executive officers, and myself that I have had the opportunity to pay my respects to you."

H. L. Beecher, president of the Eagle Roller Mill Co., New Ulm, Minn., and chairman of the board of the Millers' National Federation, who followed, said he hoped every mill executive in the country would read his message and take an added interest in the Milling Co., Minneapolis, and president of the American Association of Cereal Chemists, also spoke briefly; his message also was reproduced in last week's issue of this publication.

Meaning of Quality Wheat

Before adjourning, June 6, and again at the opening on June 7, Dr. C. O. Swanson, head of the department of milling at Manhattan, Kansas, discussed the meaning of quality in wheat. He used several charts to illustrate the points he brought out. Dr. Swanson's paper, in part, appears on page 1050 of this issue.

"The Theory of Modern Wheat Cleaning and Conditioning" was discussed by C. M. Parks, superintendent for the Bay State Milling Co., Winona, Minn., "Corrugations and Spiral for the Various Breaks and Reductions" by J. A. Nolf, superintendent of the W. J. Jennison Co., Appleton, Minn., "Purification and Bolting" by Vernon F. Doherty, of the Red Star Milling Co., Wichita, Kansas, and "How Is Milling to Be Further Improved?" by Alexander Gillespie, superintendent of the M. D. King Milling Co., Pittsfield, Ill. All of these papers appear elsewhere in this issue.

To an outsider, the interest evinced by the members in all these technical discussions was truly remarkable. Practically every speaker was kept on his feet an hour or more answering questions. Every one seemed hungry for additional information. Even at the closing session, June 8, there were 200 or more millers present, and adjournment would not have been taken on schedule time had it not been for the fact that the room had to be vacated for the meeting of another association.

The Resolutions

Resolutions of sympathy were passed in memory of the following members who have died since last year's convention at Dallas: R. T. F. Dodds, Kansas City; James Gillespie, St. Louis; William Grant, Tonganoxie, Kansas; W. A. Irvin, Wilber, Neb; A. E. McIntyre, Midland, Ont; James Melvin, Radisson, Sask; G. Mingus, Vigo, Ohio; Frank Otto, St. Elizabeth, Mo; H. E. Parrott, Belleville, Ill; C. R. Remer, Rockyford, Colo; C. L. Berdan, Grand Rapids, Mich; E. I. Noxon, St. Louis.

A resolution of thanks was passed for the fine efforts put forth by the Minneapolis committee of which Clyde A. Weaver was chairman and R. J. S. Carter treasurer. These gentlemen, and the other members of the committee, were untiring in their efforts to provide entertainment for the visitors.

A resolution was also passed thanking the research committee of the association for its efficient and untiring labors; another to the American Association of Cereal Chemists for its co-operation, and the usual acknowledgment of the work of the milling press, the advertising supporters of the association's convention program, the speakers, etc.

Canada Well Represented

The Canadian trade was well represented at both meetings. There were almost enough members present from north of the international boundary line to hold a separate convention. All evinced much interest in the proceedings, proving that the problems of the millers and the chemists on both sides of the line are identical. The presence of so many Canadians at the convention helped to cement the international relationship, and the hope was expressed that the time is not far distant when an annual convention can be held somewhere in the dominion.

Entertainment and Annual Dinner

The entertainment was sufficiently varied to satisfy the most exacting. There were auto and boat rides, luncheons, theater parties and golf, but the climax was the annual banquet the evening of June 6. At this function Hugo Roos, of Kansas City, presided, and brief talks were made by Messrs. Beecher, Anderson, Howe and Olsen. John Pillsbury, vice president of the Pillsbury Flour Mills Co., and president of the Minneapolis Chamber of Commerce, the chief speaker of the evening, told of the establishment of the milling business in Minneapolis, its early trials, and the success which followed the introduction of the middlings purifier. He also touched on the business of the Chamber of Commerce and the code of honor which exists between the traders in the pit.

Following the speaking, the tables were removed from the room, and a high class musical and entertain-

ment program provided. Features of this were stars from the kiddies' review, all of which were evidently appreciated. One number in particular that created amusement was a dialogue on the wonders of Texas, by Billie Burke Murray, a young lady of eight or nine summers. Miss Murray is a protege of D. W. Montgomery, of the Greenville (Texas) Mill & Elevator, and made her debut at the Dallas convention last year.

Dancing was enjoyed by all for an hour or two after the entertainment. During the dance, a surprise was sprung. The curtains at one end of the room were drawn, revealing an immense flour sack, branded Indian Chief. After posing for a minute or two, the Indian stepped out and gave a vivid portrayal of an Indian war dance, while the tom-tom was played by another Indian, both in full costume. This feature was contributed with the compliments of the Fulton Bag & Cotton Mills.

Carter-Mayhew Mfg. Co. Party

The Carter-Mayhew Mfg. Co. entertained the delegates and their wives at luncheon in its plant in northeastern Minneapolis, June 7. This was another pleasing feature. Chartered busses took the party out to the plant. After luncheon, the visitors were taken for a trip through the factory. Work was going on as usual. Over each machine was a placard telling what it was and the work it did. In the yard was a large circus tent, in which was displayed one of each of the machines for which the company is noted.

Operatives' Convention Notes

The millers' association now has a membership of 1,285.

The Carter-Mayhew Mfg. Co., Minneapolis, presented each lady at the Automobile Club luncheon with a stein.

The Weaver Co., Minneapolis, had scissors for the ladies, and bells and memorandum books for all who asked for them.

Dr. Jan Micka, of the Trent Institute, Guelph, Ont., a convention visitor, is a graduate of the University of Prague.

An interested spectator was Shin-Ichi Takaki, of the Naval Paymasters' College, Tokyo, Japan. Mr. Takaki plans to return home via Europe.

Playing cards were distributed by the Novadel Process Corporation, Buffalo, H. R. Williams, Kansas City, and the Strong-Scott Mfg. Co., Minneapolis.

H. H. Arendall, traveling representative for Innis, Speiden & Co., New York, manufacturers of Larvacide, a mill fumigant, gave away 1,500 souvenir pencils.

Jacob M. Johnson, head miller for the Washburn Crosby Co. at Minneapolis, was the lucky winner of the tourist tent given away by the Fulton Bag & Cotton Mills.

The Fulton Bag & Cotton Mills provided New Orleans creole pralines for the ladies. The company also pleased the men by posting daily bulletins on the grain markets.

Frank Bolton, superintendent for the Hubbard Milling Co., Mankato, Minn., sprained his ankle before leaving home, and was able to get around only with the aid of a cane.

A cablegram was received at the convention from Peter A. Kosmin, editor The Soviet Miller, Moscow, sending greetings and best wishes from the Russian members of the operatives' association.

The governor of Utah, the mayor of Ogden and all the civic organizations of that city, sent messages urging that the next convention of the Association of Operative Millers be held in Ogden. However, the secretary will later send a ballot to the membership as to their choice of a convention city and, when the information has been compiled, the executive committee will make its decision.

George Cormack, of Minneapolis, in charge of production for the Washburn Crosby Co., gave a dinner on the evening of June 7, at the Automobile Club, to the head and second millers of the company attending the convention. Those present were E. A. Whiteman and E. I. Barker, Buffalo; Carl Greer and John Czarev, Kansas City; Roy Faulk and Donald Snyder, Chicago; John N. Hall, Louisville; Warren M. Trimble, Philip Kraft, Joseph Rabal, Jacob M. Johnson and Fred J. McKay, Minneapolis.

Cereal Chemists Wind Up Annual Meeting

THE American Association of Cereal Chemists wound up last week's convention program on the afternoon of June 8. The opinion of the various delegates was that the gathering had been eminently instructive and worth while.

Officers of the association for the coming years are C. E. Mangels, of the North Dakota Agricultural Experiment Station, Fargo, president, succeeding Leslie R. Olsen, of the International Milling Co., Minneapolis; M. A. Gray, of the Pillsbury Flour Mills Co., Minneapolis, vice president, succeeding Mr. Mangels; M. D. Mize, of the Omaha (Neb.) Grain Exchange, secretary-treasurer, succeeding R. K. Durham, of the Rodney Milling Co., Kansas City, who had held that office for the past five years.

Dr. C. H. Bailey, of the University of Minnesota College of Agriculture, Forestry and Home Economics, St. Paul, was re-elected editor-in-chief of Cereal Chemistry, the association's official organ. Dr. R. C. Sherwood, of the state testing mill, St. Paul, was re-elected managing editor of that publication.

Members of the executive committee for the coming year are Mr. Gray, chairman, Mr. Olsen, Rowland J. Clark, of the Schulze Baking Co., Kansas City, and G. L. Alexander, of the Commercial Milling Co., Detroit.

The association membership recommended to the executive committee that the 1929 convention be held in Detroit, with Kansas City as alternate city. The selection of the convention city will be made at a later date.

It was announced on the final day of the convention that the St. Louis Cereal Chemists' Club, recently organized, had been granted a charter in the association. V. E. Fisher, of the Stanard-Tilton Milling Co., Alton, Ill., thanked the organization in behalf of the St. Louis group.

C. E. Mangels, of the North Dakota Agricultural Experiment Station, Fargo, Who Heads the American Association of Cereal Chemists for the Coming Year

Dr. Thomas Burr Osborne, of New Haven, Conn., was elected to honorary membership in the association, being the first chemist to receive such recognition.

The Late Professor Snyder Praised

A resolution of sympathy was adopted concerning the death of Professor Harry Snyder, of the Russell-Miller Milling Co., Minneapolis, and comment was made upon his outstanding work in the field of cereal chemistry, with particular reference to his effective replies to defamers of white bread.

Another resolution was adopted whereby the association agreed to co-operate closely with the Millers' National Federation, the American Bakers Association and the American Society of Bakery Engineers, especially in regard to defending white bread against the attacks of food faddists.

Dr. D. A. Coleman, of the United States Department of Agriculture, Washington, D. C., was thanked in another resolution for his splendid work as chairman of the committee on methods of analysis, in publishing and distributing the book of methods.

A committee will be appointed to study specifications and methods of analysis of flour in various foreign countries.

Recommendations made by the outgoing president, Mr. Olsen, were also adopted. These resolutions, published in last week's issue of The Northwestern Miller, were as follows:

1. That the association co-operate still more closely with the Millers' National Federation, and stand ready to work on any technical problems which may confront them.

2. That the executive committee draw up a set of bylaws to be recommended to the local sections, so that each section will function in approximately the same way.

3. That associate membership be abolished, and that those so classified now be made active members.

4. That a committee be appointed to prepare a history of the association, and arrange for publishing it in booklet form.

5. That a memorial resolution be spread upon the secretary's minutes commemorating the work of Harry Snyder, who died Oct. 11, 1927.

6. That inasmuch as the attack upon white bread is not justified, the association's publicity committee be given the special responsibility of combating any propaganda which is intended to defame white flour.

The Closed Business Session

Prior to the joint meeting with the operative millers on June 6, the chemists held an important business session at which officers were elected and several of the foregoing events occurred.

At this meeting Mr. Mangels, chairman of the executive committee, reported that the treasury of the association was in better condition than last year.

Mr. Durham, the outgoing secretary-treasurer, said that the total membership of the group was 355, the same as in 1927. On June 4, 1923, the membership totaled but 169.

Dr. C. B. Morison, of the American Institute of Baking, Chicago, as chairman of the employment committee, said that that body had successfully placed several members during the past year, and that it stood ready at all times to do its utmost to aid the association.

Mr. Clark reported for the publicity committee, mentioning the co-operation given him by the trade papers and displaying the scrap book of the association, which already was quite sizable.

Dr. Bailey, chairman of the convention program committee, urged members to volunteer papers for the magazine of the association—Cereal Chemistry. It was explained that the circulation of that magazine was growing steadily from year to year.

Various sectional chairmen also spoke briefly, outlining the activities of their groups in the past year.

Mr. Alexander reported for the resolutions committee, these resolutions, as mentioned above, being adopted.

The association then adjourned to meet with the operative millers. No business session was scheduled for the afternoon, many of the members availing themselves of an automobile trip to the Ford plant and around the lakes of Minneapolis. The joint banquet with the operative millers was held that evening.

Joint Session With American Chemists

The entire day, June 7, was given over to joint meetings with the Midwest regional group of the American Chemical Society. The morning session was held in the Chemistry Building of the University of Minnesota. Dr. S. C. Lind, director of laboratories, School of Chemistry, that institution, welcomed the delegates. Other speakers were Dr. S. W. Parr, president of the American Chemical Society, F. L. Clark, of the University of Illinois, and C. S. Miner, Chicago. The latter, whose subject was "Research and Profits," declared that, with industry, research still was on trial. He said that there had been many examples of successful industrial research.

Presentation of the Medal

Presentation of the Thomas Burr Osborne Medal then took place. Dr. Osborne is connected with the Connecticut Agricultural Experiment Station, New Haven, Conn. The medal was awarded to him because of the vast amount of outstanding research work he has done in the chemistry of wheat and flour. Dr. Osborne, unfortunately, was unable to be present at the convention. Dr. C. B. Morison, of the American Institute of Baking, Chicago, made an address in which he outlined the work which Dr. Osborne has done. Dr. Morison said in part: "The contributions of Thomas Burr Osborne in extending our knowledge of the chemistry of the proteins, and later, in association with Lafayette Benedict Mendel, to some of the problems of human nutrition, have been recognized by his scientific colleagues, both in this country and abroad, as of fundamental importance to future advance in these fields of study. Dr. Osborne's work has been honored by learned societies here and oversea, and is perhaps best known to the research worker in biochemical fields.

"It is, however, most appropriate, though unusual, that our comparatively young association, composed chiefly of chemists in daily contact with the cereal industries, should honor Osborne, strictly a pure research worker, who has never exploited his work or its applications to the technical fields of milling or baking. This action is also a refutation of another traditional idea that the worker in pure science is never properly appreciated by other than his own colleagues.

"Thomas Burr Osborne is a lifelong resident of New Haven, Conn., and was born there on Aug. 5, 1859. Natives of Connecticut have been celebrated as inventors for nearly 300 years; their ingenuity according to fable has been sometimes devoted to the fabrication of wooden nutmegs, contrary to the food and drugs law, but this is a libel, as any good Connecticut man will ever maintain.

"It would be interesting to chronicle the list of Connecticut inventors, but we may only mention one of them here, Eli Whitney Blake, a nephew of Eli Whitney, who invented the cotton gin; and remark that Thomas Burr Osborne is the grandson of Eli Whitney Blake, who invented the stone crusher for breaking hard rock into various coarse dispersions for use in road building and other purposes—a highly useful in-

vention, but which has been unusually effective in destroying some of the rockribbed landmarks of our beloved New England.

"Endowed with inventive genius by inheritance, it is not surprising that Dr. Osborne should have a natural aptitude for original thinking and experiment, which was often displayed as a boy. Natural things—things that go, birds, animals, machines—were early objects of his juvenile experiments. Perhaps his first experiment was a problem concerned with the capture of birds.

"It is well known to all students of folklore that the best method for catching birds is to apply a small amount of sodium chloride to the bird's caudal extremity, and if one's technic is sufficiently rapid and dexterous, one may, during the temporary motor paralysis induced by the toxic action of the drug, capture the paralyzed bird and confine him for further observations.

"Young Osborne learned of this immortal method from his elders, and proceeded to perform this experiment in order to satisfy himself of its verity.

"Selecting a suitable bird which was enjoying itself in the garden, he showered its tail liberally with salt, and to his amazement off flew the bird and with it, forever, Osborne's credulity and belief in the things that are told. As one of his old friends has remarked, 'Osborne has always been a doubting Thomas,' and ever since this early experiment he has been constantly engaged in proving things for their own sake and establishing facts to his own satisfaction. The sentiment of the old song, 'I read it in the book, and it must be so,' is not reflected in his work.

Advice to Young Chemists

"One of his constant counsels to young chemists is to beware of overdependence on the literature of any subject. Review the literature, digest it, but absorb only those facts which rest on the basis of repeated experiments; test out questionable conclusions by independent investigation and thinking, and above all do not stultify originality and action by too much reading.

"Thomas Burr Osborne followed the family traditions, entered Yale, and was graduated with the class of 1881. Interesting himself in the study of chemistry, he received his doctor's degree in 1885, and joined the scientific staff of the Connecticut Agricultural Experiment Station at New Haven as a chemist in 1886.

"At that time the director of the Connecticut station was the eminent agricultural chemist, Dr. Samuel W. Johnson, who among many other achievements may be regarded as the father of the Agricultural Experiment Station movement in the United States. Dr. Johnson was a remarkable man, an inspiring teacher, with wide chemical and other scientific interests, and a writer and translator whose books are still read and admired by many who are seeking to learn how plants grow.

"Osborne's association with Dr. Johnson as director of the scientific work of the Connecticut station was happy and fortunate for both the older and younger man, for it was very largely due to Dr. Johnson's suggestions that Osborne began his study of the proteins, which he has continued for nearly 40 years at the Connecticut station.

"In the eighties and nineties of the last century there were but few American or foreign chemists who had a compelling desire to undertake intensive studies on the vegetable proteins. The inherent difficulties of working with protein material which changed overnight, the lack of satisfactory methods of separation and purification, the comparative paucity of definite results after days of time consuming labor, and the uncertainties of reward, all reacted unfavorably against the initiation of serious work in this field. Protein study seemed like a hopeless task to most chemists of the time, especially when remarkable advances were being made in synthetic organic chemistry of apparently much more chemical interest and importance.

"A notable exception was H. Ritthausen, in Germany, who began his intensive studies of the proteins in 1860 and carried them on for over a generation. Ritthausen's work was outstanding for those times, and Osborne has written that it 'furnished the first broad foundations for a knowledge of the vegetable proteins, and the service which he rendered in developing this field of knowledge deserves far more recognition than it received during his lifetime.'

"About 1889, Osborne began under Dr. Johnson's direction a study of the 'Proteids or albumenoids of the oat kernel,' which was first published in the reports of the Connecticut Agricultural Experiment Station of 1890, 1891 and 1892, then in the American Chemical Journal of 1891 and 1892, and in 1893 as a memoir of the National Academy of Science.

"This was soon followed by a study of the proteins of the corn or maize kernel in association with Professor R. H. Chittenden, of Yale, who had lately studied with Kühne in Germany. Other papers published in the nineties were on the proteins of flaxseed, wheat kernel, kidney bean, cottonseed, rye, barley, the chemical nature of diastase, the proteins of malt, potato, pea, vetch, lupin, sunflower seed, cow pea, lentil, horse bean, soy bean, egg albumen and egg yolk.

"These important contributions to our knowledge of the vegetable proteins were recognized by chemists, after some years of comparative obscurity, as of fundamental value. V. Griessmayer, of Munich, who published a book on the proteins of the cereal grains, legumes and oil bearing seeds in 1897, which consisted largely of abstracts from these first papers of Osborne, stated in the introduction to this book that 'It was my object to bring to light these treasures buried in their American publications, which were skillfully planned and executed with the most scrupulous thoroughness.'

"This statement of Griessmayer's, according to Dr. E. H. Jenkins, director emeritus of the Connecticut Agricultural Experiment Station, New Haven, was perhaps the first public recognition of Osborne's thorough work in this field.

"The decade of the 1900's in the history of Osborne's work is largely characterized by an interest in some of the more complicated problems of protein chemistry, such as the well-known work on edestin, sulphur in proteins, the nucleic acid of wheat embryo, the alcohol soluble protein of wheat, solubility and precipitation studies of different proteins and hydrolyses of many isolated proteins, gliadin, glutenin, phaseolin, excelsin, hordein, legumin, glycinin, vignin, legumelin, vicilin and others.

"Dr. Osborne's great monograph on the proteins of the wheat kernel, which is a fundamental source book for all cereal chemists, was published in 1907 during this period of his work. In this monograph he presented the history of the subject and the results of his work on wheat proteins up to this time, and made available in one source the results of his various separate contributions. Another memorable product of this period was the 'Vegetable Proteins of 1909,' in which the knowledge in this field was reviewed and summarized by its most outstanding authority since Ritthausen. A new impression of this work was published in 1919, and a second edition in 1924.

"In 1910, and subsequently, Osborne's published papers reveal his interest in some of the more complex biological relations of the proteins. The well-known work on anaphylaxis in association with H. G. Wells, of Chicago, appeared at this time, and also the first nutrition studies with L. B. Mendel, of Yale.

"That such biological studies should be undertaken in the laboratory of a protein investigator is not surprising, since the separation, purification and analysis of the proteins had been accomplished here with a high degree of thoroughness and skill. It was apparent that the biological relations and properties of proteins could well be studied in the laboratory of one who knew how to prepare them. This is an example of modern teamwork in research, and has borne rich fruit.

E. C. Veeck, Newly Elected Vice President of the Association of Operative Millers

"The biological studies of Osborne and associates best known to cereal chemists are those on the nutritive properties of the cereal grains, especially the wheat kernel and its products. These contributions are classics, and should be better known and considered by all those who feel obliged to lay down the law on the role of wheat, flour and bread in popular nutrition.

"The published literature of Thomas Burr Osborne includes over 250 titles of papers and books. These include his studies of the vegetable proteins, several animal proteins, the chemistry and biological relations of proteins, and many on nutrition. His work still is in progress, and while today he is perhaps best known by his recent work in nutrition, his main interest is in the proteins, and with broad vision he looks forward to the time when the chemistry of the protein molecule will be further clarified, and when, with improved technic and a more scientific background, chemists will have greatly advanced our knowledge of the chemistry of the living cell.

"Osborne has never sought to build up a school, but his influence has brought to his laboratory many valued assistants and associates, one of whom, C. L. Leavenworth, is still working with him after more than 20 years of valued association, and another, D. B. Jones, of Washington, D. C., is carrying on some of the Osborne traditions, as his recent work on the wheat bran and endosperm proteins indicates.

"Thomas Burr Osborne will always be remembered by those engaged in the research and technical activities of the cereal industries as a pioneer whose innate genius and perseverance in an unpromising and difficult field has made possible our fundamental knowledge of the proteins of the cereal grains and their nutritive properties."

Dr. Osborne had delegated Dr. Carl L. Alsberg, of the Food Research Institute, Stanford University, to receive the medal on his behalf.

Dr. Alsberg subsequently read a paper by Dr. Osborne, saying in part: "I greatly regret that conditions are such that I must delegate to another the acceptance of the medal with which you have honored me. This recognition from your association is particularly gratifying to me in view of the almost total lack of recognition my work received during the many years in which I was chiefly occupied in studying the proteins of the cereals. If it had not been for the warm support of Professor S. W. Johnson, then director of the Connecticut Agricultural Experiment Station, and that of the later director, E. H. Jenkins, as well as my own firm conviction that anything that could be learned about the chemistry of cereals was important, I am quite sure I should have been discouraged. During those years none of my fellow-chemists seemed to take any interest in my work; in fact, many of them intimated pretty plainly that I was wasting my time working in a hopeless field. Consequently, you can realize that I am greatly pleased to find that, as my active life is closing, your association thinks that what I have done is so well worth while as not only to deserve a gold medal, but one named after me, and of which I am the first recipient. Gentlemen, I thank you.

Early Research Recalled

"As I contrast the conditions in agricultural chemistry today with those prevailing at the time I first began to work with cereals, and realize that now the workers in cereal chemistry alone are sufficiently numerous to form your relatively large association, I can hardly believe that this has all come to pass. When my first papers on vegetable proteins were written, we did not dare print them in the reports of the Connecticut Agricultural Experiment Station lest, when the question of our appropriation should come up, some witty member of the legislature should ridicule them and their author on the ground that there was no apparent practical application of the results that would be useful to the farmer. Those first papers were published in the American Chemical Journal, edited by Ira Remsen. After he had received three or four of them he plainly intimated that more would not be received with joy. I sent the next to the Journal of the American Chemical Society, which accepted it with some signs of appreciation. This encouraged me, and I continued to publish there until the Journal of Biological Chemistry was founded. Since then my papers have appeared in that publication.

"It is interesting to recall that the first real signs of appreciation of this line of work came from Germany, where all the papers which I had printed during several years were gathered together, translated into German and published in a volume. After that it was much easier to carry on, and more and more chemists became interested in this work. I must confess that I had not found it easy to be working in such an isolated field, and the reception of some recognition was decidedly helpful. Looking back to this beginning, you can readily see how gratifying it is to me to receive this medal today.

"I have no recently completed research to offer you according to the custom on occasions like this. Instead, I wish to call your attention to some present day problems in the work you are engaged in. Under conditions prevailing today, it is far easier to devote oneself to research in a field that offers little promise of immediate practical application than it was when I began, and I therefore hope that what I have said of my experience will inspire other workers to take up new lines of work, with the confident expectation that whatever may be learned and definitely established in regard to the chemistry of cereals cannot fail sooner or later to be of use and to be worth all that it costs in time and money. When I see in how many different directions the results of the work which I started has been applied, I am astonished. Many of these applications have been in fields in which these results could not have been expected to be of any use. This is particularly true in their application to problems in medical science. In fact, for many years men engaged in research in the biological sciences were the first to make real use of my work, and I found myself better

known among biologists and physicians than among agricultural chemists.

"In the field of cereal chemistry there still are many problems awaiting investigation. With modern facilities in experiment stations, research institutions and universities, and improved apparatus and available funds, it ought to be possible to learn much that will be useful and of broad application. We do not yet know by any means as much about the proteins of the cereals as we ought to know. This is particularly true of wheat gluten.

"The nitrogen content of thoroughly washed gluten indicates a larger proportion of nonprotein substance than has as yet been accounted for. It is possible that a part of this may be combined with protein as a compound neither basic nor acid, and hence not soluble in either dilute acids or alkalies. That such a protein complex may occur in the seeds of cereals is indicated by the relatively small proportion of the nitrogen which can be brought into a clear solution with alkalies. We have heretofore assumed that the protein precipitated by neutralizing such a solution made from wheat gluten represents the whole of the protein insoluble in alcohol which has been designated wheat glutelin, but that such is the case has by no means been proved.

"My former colleague, Dr. D. B. Jones, has recently made a study of the glutelins in several of the cereals and has obtained such small yields of purified preparations that it seems hardly credible that these represent all of the residual nitrogen unless a very considerable part of the protein of the cereals exists in some such combination as I have suggested.

"It ought to be possible to get some evidence as to the approximate proportion of the residual protein and nitrogen by properly conducted hydrolyses. Heretofore, when studying proteins we have all tried, as far as possible, to avoid causing any changes in them through the action of reagents. Here we seem to have a case where perhaps we could learn something by the opposite procedure. Now that we know so much about the products of hydrolysis of proteins, it is possible that we might get some good indirect evidence as to how much of the relatively insoluble nitrogen may belong to protein by studying these products. Through such a procedure we might learn something more about those proteins of which we now know so little.

"The first cereal with which I worked was the oat kernel, and I have long wished that some one would explain the unusual behavior of the proteins of this seed. In all my experience I have never found a seed containing proteins behaving toward solvents as this does.

"Proteins are by no means the only constituents of cereals that are important. Now that we know the part played in nutrition by insignificant quantities of the so-called vitamins, we must isolate and chemically define every possible constituent of the cereals.

"Those of you connected with the industries may have exceptionally good facilities to procure material for special studies that are better than any heretofore obtainable.

"The embryos of wheat and corn are full of all kinds of things the nature of which is little known. These two products afford opportunity for chemical research of the highest order, and both scientific and practical importance. Your Association of Cereal Chemists is in a position to promote such investigations successfully. In these days of modern science, cooperation is essential. It is no longer possible in such a field as yours for one man to work alone effectively. Cereal chemistry involves far more than one would at first suppose, for not only are carbohydrates, proteins, fats and inorganic salts included in this field, but also many other groups of substances which occur in smaller proportions.

"The importance of a knowledge of the chemistry of these minor constituents of our food has only recently been appreciated. What is it in the wheat germ that renders an animal fertile which would otherwise be sterile? Why is the commercial wheat germ meal rich in the so-called vitamin B, while the pure germ appears to be practically destitute of this essential food factor?

"Here are only two of the many problems that the cereal chemist has before him, and these have not only scientific, but practical importance. To solve these problems requires the co-operation of many among you who have exceptional opportunities both in chemical training and mechanical facilities.

"Chemists have done much for the industries, and it is now time that the industries should appreciate this and be generous in paying their debt. Gentlemen, again I thank you for the honor you have done me and congratulate you on the opportunities that lie before you for important contributions to science and industry."

Dedication Ceremony

Luncheon was subsequently served at the Men's Union, on the campus. Afterward, chartered cars transported the delegates to the "Farm Campus" in St. Paul.

On account of inclement weather, it was necessary to hold the dedication ceremony of the Plant Industry Building in the auditorium of the main building. Speakers included the Hon. Fred B. Snyder, president of the board of regents of the university, Dr. W. C. Coffey, dean of the department of agriculture and a director of the Agricultural Experiment Station, University of Minnesota, Dr. Parr, Mr. Olsen, Dr. Frank C. Whitmore, professor of chemistry, Northwestern University, Chicago, and Dr. R. W. Thatcher, president of the Massachusetts Agricultural College, the latter delivering a lengthy paper on "Science and Life."

In his address Mr. Olsen said in part: "Cereal chemistry is one of the important branches on the biochemistry tree, and in recent years it has been enjoying a vigorous growth. It has played a big part in the development of the wheat and flour industry. Four years ago, Dr. M. J. Blish wrote a very thorough paper entitled "Cereal Chemistry of Today," in which he mentioned the important accomplishments of cereal chemistry. More data has since been obtained through

M. A. Gray, Newly Elected Vice President of the American Association of Cereal Chemists

valuable researches, so that we now have chemical information on practically every phase of milling and baking.

"However, many problems still confront us. The most serious of these is the decided lack of exact chemical methods for the rapid and accurate estimation of strength or baking quality in wheats and flours, chiefly due to the incompleteness of our knowledge of all of the factors upon which strength fundamentally depends. Actual baking tests conducted by experts under carefully controlled conditions must still be resorted to in order that flour strength may be accurately judged. I have always clung to the hope that some day a single method of laboratory examination will be developed which will enable the milling chemist to make an unerring statement as to the quality of a flour.

"It was to meet the needs arising from the shortcomings of modern cereal chemistry that the American Association of Cereal Chemists was organized in 1915 by a small, but enthusiastic, group of mill chemists. Its prime purpose is to perfect, standardize and supplement the analytical methods employed in laboratories. The association also publishes a journal giving the latest researches in the field of cereal chemistry and closely allied subjects. Obviously, many other advantages can be derived from belonging to an organization of this kind.

"We now have approximately 400 members, quite a number of whom are connected with experiment stations and agricultural colleges such as this. It is to these men that we will, of necessity, have to look for further assistance in solving many of our problems. Therefore, it is highly desirable that close co-operation exist between experiment station workers and the men in the industries. Opportunity for research in commercial laboratories is usually limited; yet, as some one has said, 'Eternal research is the price of survival in modern industry.'

"One of the pitfalls in the way of advancement, however, is the type of scientist engaged in purely academic endeavor, who is making a bluff at research that promises to revolutionize milling. Fortunately, such men are not as numerous as formerly. Another danger is that some students, in their enthusiasm for 'higher education,' lose sight of the value of common sense. So few are willing to say: 'I do not know.' Some sort of an answer is usually forthcoming. Is it any wonder that the average millowner discounts a great deal of what is told him about the application of chemistry to milling?

"May I also repeat a note of warning which my predecessor, Rowland J. Clark, sounded a year ago to students intending to enter commercial work? No college graduate, even though he carries a Ph.D. degree, should seek a chief chemist's position with a large mill or bakery. He should first serve an apprenticeship in the laboratory or the plant. Schools and professors who ignore this principle only bring eventual discouragement upon their graduates and reflection upon their institutions."

Following the program, the new building was inspected. The chemists remained at the Farm School for dinner. In the evening, "Wind in the South" was presented in the Music Building on the main campus, chemists and their wives attending.

The Final Day's Meeting

In order to catch up with their program, the chemists assembled shortly after 8:30 on the morning of June 8. In addition to the happenings chronicled at the beginning of this report, several bits of business were transacted, including a report of the auditing committee, A. R. Sasse, of the Southwestern Milling Co., Inc., Kansas City, chairman, stating that the books of the association had been found in first class shape.

A paper by Mr. Mangels and T. E. Stoa, entitled "The Effect of Stage of Maturity Upon Composition and Quality of Marquis Wheat," was read by the former. An abstract of this paper appears on page 1059 of this issue.

"Some Oxidizing Effects of Flour Bleaching," a paper by E. B. Working, was subsequently read by Dr. C. O. Swanson, an abstract appearing on page 1060.

A paper dealing with "Some Applications of Spectrophotometric Methods to Baking Problems," written by Eva L. Stephens, Alice M. Child and Dr. Bailey, was presented by Miss Stephens. An abstract is given on page 1060.

Dr. R. C. Sherwood read a paper on "The Correlation of the Ash Content of Wheat and of Flour," prepared by himself and Dr. Bailey. An abstract may be found on this page.

Another paper read was one prepared by Dr. Emily Grewe, of the Bureau of Dairy Industry, Washington, D. C. This dealt with "Effect of Variation in the Method of Manufacture on the Baking Quality of Dry Skim Milk," and an abstract appears on page 1060.

Dr. D. W. Kent-Jones, chemist, Dover, Eng., read a paper regarding "Heat Conditioning of Wheat," pointing out that his auditors should remember that he was speaking from the English standpoint. An abstract of this paper appears on page 1058.

Brief discussion followed these papers, after which the chemists took up the matter of several changes in the association's constitution.

Members attended a luncheon in honor of the new officers that noon.

In the afternoon, a paper by C. G. Ferrari, "Some Fundamental Considerations of Flour Color," an abstract of which may be found on page 1060, was read. F. J. G. de Leeuw, co-author with F. Visser 't Hooft of a paper on "Color of Flour," was next on the program. An abstract of the paper appears on page 1060 of this issue.

The final speaker was Dr. Bailey, who read a paper on "Flour that Talks." Dr. Bailey said that a product that would tell the story of its superiority was the ideal of every manufacturer and salesman. Taking advantage of recent physical and physicochemical developments, he said, a device had been perfected by means of which flour was made to express audibly its inferior qualities when these were encountered. In the same manner, high grade flour would by comparison likewise express its superior qualities. The device used in this connection was demonstrated, and its principle and design explained.

Correlation of the Ash Content

ONE of the papers read at the chemists' morning session on June 8, prepared by Dr. Sherwood and Dr. Bailey, and presented by the former, dealt with "The Correlation of the Ash Content of Wheat and of Flour."

It was brought out that in the instance of 148 samples of wheat, representing three crops, the percentage of ash in straight flour, milled from the wheat, was correlated with the percentage of ash in the wheat. In other words, when the ash content of the wheat increased, that of the flour likewise increased. Exceptions to this rule were few.

It followed, therefore, it was explained, that the percentage extraction of a flour cannot be estimated with precision from its ash content alone, unless the percentage of ash in the wheat from which it was milled is known. With the latter data it was believed that the percentage extraction can be estimated with fair accuracy from the ash content of the flour, providing the milling system that is used in the production of the flour approaches the normal. The correlation of ash content of the straight grade flour with that of the wheat was of a higher order than that of the second middlings flour with the wheat. Variations in the ash content of the second middlings flour indicated definitely that there were variations in the percentage of ash in the endosperm of the wheat.

The Meaning of Quality in Wheat

By Dr. C. O. Swanson

Head of the Department of Milling Industry, Kansas State Agricultural College, Manhattan, Kansas

A paper read and discussed at the thirty-third annual convention of the Association of Operative Millers, in Minneapolis, on June 6

QUALITY in wheat is an expression which conveys different pictures to the minds of different people. The reason for this is that the term, quality, is made to describe a number of different characteristics, and hence it is difficult to define the quality with a short statement. Good quality means a preponderance of desirable characteristics; poor quality means the presence of several undesirable characteristics, or sometimes one which is so preponderant that the wheat is not satisfactory. For our purpose we will try to describe briefly the different characteristics, the methods of estimating these, and will endeavor to interpret their meaning in terms of value to the ultimate consumer.

First, a few words on what quality means to the wheat producer. To him a good quality may be a poor quality wheat to the miller. It is necessary to consider the producer, because he must be satisfied first; otherwise, we will not have any wheat. Good quality, to the producer, means high yield per acre, sound, high test weight, a good color and fairly high protein content. Such wheat will command a price that gives him a fair return for his labor and profit on his investment.

To be satisfactory to the wheat producer, a wheat variety must be adapted to the climatic and soil conditions. If it is a winter wheat, it must be cold resistant, and both hard spring and hard winter wheat must be drouth and heat resistant. The wheat should be resistant to diseases such as rust, and it must have the proper growth habits so as to have good harvesting properties. This means that the heads must be erect, straw fairly short, and it must not lodge easily. When the great prairies of the plains area were first broken, and where now is the great wheat belt of the world, the soil was rich in nitrogen, and good yields of high protein wheat were common. With the expanding needs for wheat and with the limitation of soils suitable for growing such wheat, the future will see a restriction in the amount of such high quality hard wheat as we have had in the past. This does not mean that it will be impossible to produce such wheat in the future, but it means that it will be produced only with added expense to the producer. This means that, if he is to produce such quality wheat, the marketing agencies must devise ways and means to pay for it, not only in certain districts but to individual farmers.

The miller looks upon the wheat grain as consisting of three main parts: the bran coat, the germ, and the endosperm. Analysis has shown that in average good wheat the bran coat makes up 14.5 per cent, the germ 1.5 per cent, and the endosperm 84 per cent. The main job of the miller is to separate the bran and the germ from the endosperm and convert the latter into a good, salable flour. The reason for this separation is that flour must have good keeping qualities, and that it must adapt itself to the preparation of a variety of foods. White flour produces a bread which suits the æsthetic taste, and is the product demanded by the public.

The Kind of Wheat Needed

The miller must in the first place have a wheat that is reasonably free from foreign material, such as weed seeds, chaff and dirt. It should be plump, which means less bran and more endosperm. It should have a high test weight, because a high test weight gives more flour for the same weight of wheat. It must have a good color, which indicates that it is sound or free from damage. It should have the characteristics denoted by easy milling. Modern milling is possible because the bran coat, the germ, and the endosperm differ in relative toughness or friability. For this reason the kernel should be free from damage or any injury which makes the bran pulverize easily. Such damage is caused by injury during harvesting, in the stack or during storage in the bin.

The baker is mainly concerned with the flour, whether it will make the kind of products demanded by his trade. Since there are all kinds of baking products, different flours are needed to supply the baking trade, and from this standpoint quality means different things in different bakeshops. As the greater amount of flour is used for the production of bread, with yeast as a leavening agent, quality, from the baker's standpoint, usually means a flour that is satisfactory for such bread making. This means a balance of factors both for gas production and gas retention. The flour used for making biscuits or hot breads, where sodium bicarbonate is the leavening agent, should have a somewhat different quality. With yeast there is a comparatively slow but continuously increasing gas expansion. With sodium bicarbonate there is a comparatively quick gas expansion which comes to a sudden stop.

For bread production a flour of high water absorption is demanded, since as a rule such flour produces more bread per barrel. This, however, is of less importance than the fact that it produces good bread under the mechanical conditions existing in the modern bakeshop. A few years ago, factory baking accounted for one third of the total flour milled in our country, and home baking two thirds. Since expansion in factory baking has gone on at an ever increasing rate, it is probable that at present factory baking uses about one half of the total flour. It is therefore very necessary that the miller shall produce a flour which is adapted for use under the conditions of the modern bakeshop.

Then flour is used for all kinds of cooking and pastry work. It should be understood that, with proper care, different flours can be used interchangeably, but the main point is that one kind lends itself better to one purpose than another.

We see, therefore, that quality is rather difficult to define, and that it conveys different mental pictures to the miller, the baker and the wheat producer. The producer is interested in the wheat price, the miller in the wheat, and the baker in the flour.

There are a number of factors that determine quality in wheat. We may divide these into pre-harvest and post-harvest factors. The pre-harvest factors are mainly climate, wheat variety, soil management and ripening conditions.

Climatic factors are beyond control, therefore the wheat producer must choose a wheat variety which is adapted to the climate as he finds it. However, there may be several varieties adapted to his conditions. Some of these are better than others, from the standpoint of the miller and the baker. The mention of Preston wheat to northwestern millers, as well as other varieties which cause considerable stir from time to time, is enough to show that poorer as well as better varieties may be grown under the same climatic conditions. The choice of the best milling variety will not be made by the producer unless the stimulus comes from the grain buyer in the form of a better price.

The hard wheats, or the wheats most desired for making bread flour, are produced under climatic conditions known as continental. In the Northwest spring sown varieties, and in the Southwest fall sown varieties, are mostly produced. The main characteristic of a continental climate is that the winter temperatures range from very cold to moderately cold, with a relatively small precipitation. The conditions prevailing at the time of wheat maturing and ripening are most important. These may be described as relatively hot and dry. This is in contrast to the conditions which prevail where the climate is known as insular. There the climate is more wet and the weather more humid during the maturing and ripening conditions. Such a climate produces a softer wheat.

The soil conditions are more or less controlled by the wheat producer, and this control will operate in an increasing measure with greater demands on yields per acre. It is easier to product a high protein, strong wheat under conditions of extensive production than under intensive production. A good illustration is that of irrigated wheat. Irrigated wheat is weak, because often it is grown where all factors favor maximum production with a minimum soil nitrogen and not because it is grown under irrigation. If an abundance of soil nitrogen is supplied, high protein wheat can be grown under irrigation. This is simply one phase of the nitrogen problem as it affects the milling industry. Some millers may think it is a far cry from cheap, nitrogenous fertilizers to high quality wheat, but in the future such fertilizers will probably have more to do with the production of satisfactory milling wheat than almost any other factor.

Importance of Ripening Conditions

The ripening conditions are also very important in affecting the quality. These conditions are beyond the wheat producer's control. If the conditions of ripening are such as to cause slow maturing, the wheat will likely be plump, high yielding, as well as high in test weight, but it may be low in protein. If the conditions will produce rapid maturity, the wheat may be shriveled, low in test weight, but high in protein; however, not necessarily so. Hot winds may in a few days seriously injure what promises to be a good crop of high quality wheat. Wheat diseases are very serious in their effect on quality.

The conditions which affect the quality of wheat after it is ripened are the weather which exists at the time the wheat is cut and while it is in the shock or stack; the storage conditions on the farm and in the elevator. While it is in the shock, weather conditions may cause incipient germination, and in the stack or bin there may be damage from too much moisture and too high a temperature.

The coming of the combine harvester and thresher has added another problem. Under suitable conditions a high quality wheat may be harvested with the combine, but since the period for harvesting is more restricted, it usually requires a greater degree of care and thought to obtain good wheat with the combine than with the older and better understood methods.

In the days of custom milling, when the farmer took his wheat to the mill to be ground and brought the flour and feed back home in the same sacks, such testing of wheat for quality as we use today was unknown. Methods of testing wheat for quality came with the development of merchant milling, and as we have merchant milling on an ever increasing scale, good methods for testing quality in wheat will be in greater demand than ever.

We need to know the moisture content of the wheat in order to know its keeping quality. The drier the wheat, the better it keeps, and the less danger from deterioration which takes place under storage. Also, the drier it is, the more actual wheat there is per weighed bushel. The drier wheat a miller obtains, the longer he will be on weight. In years when the wheat is of a prevailingly high moisture content, the miller is likely to be short on wheat. The color and appearance are of importance, because they are an index of freedom from damage. An off color indicates a damage that may be deep seated, and the flour from that endosperm may not be satisfactory. The protein content is one of the more recent tests, and more will be said later in regard to the meaning of the protein test. The milling test made on an experimental mill is important as a qualitative test for the way the wheat mills. It has less importance from the quantitative standpoint. Its greatest value is to obtain some flour on which to make further tests.

We need to know the moisture in flour in order to know its keeping quality and the yield. The ash test tells the miller how successful he is in making a clean separation of the bran coat from the endosperm, and it also tells him if his milling machines are giving a good performance.

The Value of the Baking Test

The baking test has been considered as one of the best tests in determining quality of the flour. Cereal chemistry is one of the younger sciences. Twenty years ago the cereal chemist was rather rare. Today, up-to-date milling plants do not think of getting along without the services of the cereal chemists. These men have studied and worked hard in developing satisfactory methods for testing flour. The baking test has been one of the most difficult to standardize. We might just as well admit that it never will be as well standardized as the protein test, simply for the reason that there must be many different kinds of baking tests and baking appears to be more of an art than a science, at least at present. Also, flour is used for a variety of purposes, and hence we must have several kinds of tests. In flour, as well as in wheat, we must study characteristics, and our endeavor should be centered more upon interpreting what these characteristics mean in the bakeshop. One trouble is that we attempt to make the baking test cover too much ground. Until we know how to evaluate the results obtained in the laboratory in terms of bakeshop practice, we are still far from knowing what we need to know about the baking test.

Up to this point we have been on more or less familiar ground. We will now go into what may be less familiar, in order that we may learn more about the meaning of quality. We have seen that quality is very difficult to define or describe, and that there are a number of factors or characteristics which determine it. It is not easy to analyze these factors or show their relationship. However, if we are to understand what is meant by quality, it is necessary that we consider these factors and attempt to analyze their relationships.

When wheat is milled, or when bran coat and germ are separated from the endosperm, the latter is reduced to fine particles which make up the flour. These particles are .005 of an inch in diameter, which means that it would take about 40,000 to cover one square inch of surface. This emphasizes to us the minuteness of the flour particle. Although so very small, each particle has the same components which were present in the endosperm, and in practically the same proportion. The endosperm is composed of about 74 per cent starch, 11 per cent water, a little fat, sugar, and the elements which compose the ash. We may consider

that each flour particle has approximately the same percentage composition as the endosperm. The starch, which makes up about three fourths of the flour, exists as oval granules. There are two sizes in wheat flour, the large and the small. The small has a diameter of about 0.00024 inch, and the large ones 0.0015 inch; that is, the large particles have a diameter about six times as great as the small ones, which means that their mass is at least 30 times as great. However, even the large starch granules are very small. The important point here is that the shape of the starch granules is oval or spherical. Such bodies have a minimum amount of surface in relation to the amount of mass. We know a great deal about the shape and size of the starch granules, since they are easily seen under the microscope.

However, when we come to speak of the physical structure of protein, we are on more uncertain ground. We have good evidence to believe that the protein material in the flour exists as particles. No one has ever seen the protein particles, and no one probably ever will. What we know about their shape and their relation to each other is based upon a knowledge of their behavior. From this we judge that the protein particles, as distinguished from the starch particles, are not oval or spherical. The best imaginary picture we have of a protein particle is that of radiating fibrils or interlacing meshwork; that is, a nucleus or center from which thin filaments or fibers extend in all directions. A very crude illustration would be that of a tumble weed, if we imagine the root at the center, with the branches extending in all directions. The reason we cannot see such a body is that the fibers are so fine that they cannot be made visible under a microscope. Such a body, in distinction from a spherical body, would have a very large surface in proportion to the total amount of mass. It is important to remember this distinction in the configuration of the protein and the starch particles.

The Action of Water

When water wets a substance, it spreads itself as a thin film over the surface. A clean finger dipped in water will be covered with a thin film of water. If the finger is greasy, the water will not assume the form of a film, but will draw itself together in drops which cling to the surface of the finger. If a small stone is put in water, it will cover only the outside surface. If a piece of wood is dipped in water, the surface is first covered, but if left in the water long enough it will penetrate into the interior; that is, the water wets not only the surface but some would be absorbed in the interior of the wood. For this reason, a somewhat larger amount of water would be taken up by the wood than by the same sized stone.

If we dip a sponge in water we have an entirely different phenomenon. A much larger amount of water would be absorbed than by the wood. This is because the sponge is a mass of fine fibrous material. The surface is enormous in proportion to the total amount of mass, as compared to the wood or stone. For this reason it takes a comparatively larger amount of water simply to cover the surface of the fibers. The water is also held by what is known as capillary attraction. What we should see clearly here is the difference between the absorption of water when it wets only the outside surface, as in the case of a stone, or when only a small part penetrates into the interior, as in the case of wood, and when a very large amount is absorbed, as in the case of the sponge.

When water is added to flour, the well-known dough is formed. Part of the water is taken up by the starch, part by the protein, and part exists as free water in films covering both the starch and protein particles. Because of the oval shape of the starch particles, and because of the somewhat solid condition, most of the water accounted for by starch absorption exists on the surface of the starch particles. A very little may penetrate into the interior, the same as water penetrates into wood. The protein particles behave more like the sponge, because of their shape or configuration.

It has been calculated that in dough the protein particles hold or absorb as much water as the starch particles, although the mass of starch is from six to seven times as great as the protein. This is one reason why the higher protein flours absorb more water. The free water exists in the films on the surface of the starch granules, and is also held by capillary forces in the filaments of the protein particles. Because of the larger surface of the radiating protein fibrils, the water in the films covering their surface would amount to more than the water films covering the oval-shaped starch granules. Some water may also be held by what is designated as capillary attraction. Any way, we speak of free water as distinct from absorbed water. We shall designate this water as part of the environment of the protein particles.

Cementing Properties of Water

The water which exists in films on solid particles has cementing properties. This may be shown by a very crude illustration. A lump of dry soil will form dust if it is pulverized. There is no coherence among the particles. Add a little water, and a stiff mud is obtained. The cementing action is due to forces known to the chemist as surface tension. The force of this cementing action is closely related to the amount of water. For instance, in plastic clay the films of water must be of such thickness that the particles of clay can slip on each other by gliding in the water films. If the films are too thin, then gliding does not take place, but a break occurs in the clay under stress. On the other hand, if the films are too thick, gliding takes place too easily and the clay will not hold its shape. This illustrates in a crude way why the amount of water has a relation to the stiffness of dough. In making a baking test, the amount of water is very important. A flour that has more tolerance in this respect is of higher quality.

Water and flour are the two most important dough forming materials. The mixture of wheat flour and water has unique characteristics such as are found only in such a mixture. A mixture of corn meal and water or of starch and water has entirely different properties than wheat flour and water. The dough acts as though it were permeated with a mass of elastic strings, filaments, strands, or fibers, or whatever we may call them.

The starch of the flour is enmeshed in these strands, and as it makes up about six sevenths of the dry mass

Dr. C. O. Swanson
Dean of Milling in Kansas State Agricultural College

of flour, the protein filamentous mesh is very attenuated. The starch granules are held loosely in this mesh, since by far the greater part may be easily removed by working and washing the dough in water. The process is known as gluten washing, and the mechanical manipulation of this process causes the fibers to mat or stick to each other so as to give us the familiar gluten mass.

We have mentioned that no one has ever seen the protein particles, because of their size and configuration. For the same reasons no one has ever seen these filaments in the dough. We see the washed gluten, because it is made up of thousands of these fibers bunched or matted together. The assumption of the existence of these fibrous filaments in the dough helps us to understand some of the properties connected with quality in flour.

It appears that, when water is added to flour, the protein material which exists as particles unites in some way to form these filaments. We have already spoken of the cementing action of water on solid particles like starch granules. If we have that figure in mind, we can easily see that the cementing action on particles made up of a mass of radiating fibrils would be much stronger. We can also see that it would be easy for these filaments to become entangled in each other. We know that we can wad cotton fibers so as to form a felt. It is, therefore, easy to see that the protein particles could easily, in the presence of water, form these filaments.

The Elasticity of Dough

These strands or filaments give to dough its distinctive properties. Dough has elasticity; that is, it can be stretched. This is because these strands have elasticity somewhat like rubber bands; that is, there is a spring-back after stretching. This elasticity, however, is fundamentally different from that in rubber bands. No matter how much you stretch a rubber band, inside the elastic limit, it will resume its former shape. It will break if stretched beyond the elastic limit, but the pieces will have the same form as the original rubber band. Not so with the stringy material of dough. It will resume its former shape or spring back only if it is stretched to a certain limit, and this limit is very small. If it is stretched beyond this limit, it will only partially resume its former shape. Therefore, the elasticity of these strands is different from that of rubber bands. It appears, therefore, that there is a possibility of elongation in the particles themselves, and also that they may slip in each other; that is, the spring-back is due to the elasticity in the particles themselves and, after this limit is exceeded, the slipping takes place.

Right here we will emphasize that we are dealing with the protein particles themselves, and with the environment of these particles. Quality is fundamentally dependent on these two sets of factors. Quality, as determined by the protein particles themselves, is inherent in the wheat endosperm. Quality as affected by the environment is somewhat, if not largely, under the control of the baker. The quality belonging to the protein particles is fixed when the miller gets the wheat. The factor of the environment in the dough may be modified by the baker to suit the other factors. This distinction will help us to understand why a usable product may be made from the flour of any ground wheat, provided a suitable method is used.

The most important properties of dough for bread making is that it must have both gas producing and gas retaining capacity; that is, when yeast grows in dough it must be able to retain the carbon dioxide produced, and it must have enough firmness so as to hold the shape until this is coagulated or set by the oven heat. The gas retaining capacity of the dough is one of its most important properties, and our next point will be to study the mechanism of this gas retention.

Water's Film Making Characteristics

When a fine wire screen is dipped in water, each mesh is filled with a film of water. This means that water has film making properties, but in water alone the film making properties are weak. If a substance like soap is put in the water the film making properties are increased, and it is possible not only to extend the film over quite large meshes, but it is even easy to blow bubbles. It appears that soap in water forms some kind of filamentous structure to which the water molecules may cling.

The bubbles that are produced in dough under yeast action are spherical films of dough material. A mixture of starch and water alone will not form bubbles to retain gas, because the starch granules do not unite to form the necessary filaments. We have already shown that the protein fibrils are very fine and very numerous, and hence it appears that, when these are covered with water, films may be formed in a manner similar to films of soap water. The dough forms much stronger bubbles, because of the much larger size of the protein particles. We mentioned that the protein particles form elastic strands which may be stretched; also that they may slip on each other. It appears, therefore, that these protein particles constantly rearrange themselves in a rising dough, both by slipping on each other and on the starch particles and by stretching, the whole procedure being such that the strength of the films is sufficiently maintained to retain the gas. The more protein the more film making material, and this is one of the reasons for the greater strength of higher protein flour.

We have already stated that a satisfactory dough must have both gas producing and gas retaining capacity, and we have attempted to describe the mechanism of gas retention. The gas retaining capacity depends primarily upon the quality of the gluten fibers. When yeast grows in dough, the expanding bubbles of carbon dioxide are surrounded with the thin films of dough. If the dough shall rise properly, it means that there must be yielding properties; that is, these films must expand to allow the bubbles to become larger and larger under the constantly increasing pressure of the gas. These films could not expand unless these fibers were elastic. This elasticity depends, in the first place, upon that quality in the fibers which allows stretching; secondly, upon the environment of the fibers which allows them to slip on each other.

The quality inherent in the fibers themselves is related to the protein particles. This quality would depend upon the chemical nature of the protein as well as the amount of the protein. We know that this protein is made up of individual protein compounds. Cereal chemists have found that these protein compounds are the well-known gliadin and glutenin, as well as water soluble and salt soluble proteins. Years ago it was thought that quality in flour depended upon the ratio of these proteins to each other. It has been demonstrated by later investigations that the relative amounts or ratios of these proteins are fairly constant in the different important commercial wheat flours. We know, however, that there is a difference in the quality of proteins themselves. We know that those from different varieties of wheats are different. Just how to explain these differences, we are at a loss. From what we know, it is not due to the way that they are put together. We know that from the same kind of bricks we can build different structures. We have mentioned the water films, and the importance of water in bringing these particles together in forming filaments. Materials dissolved in this water may affect the relation of these particles to each other, and hence the strength of these films. The quality of the fibers themselves is determined at the time the endosperm is laid down in the kernel. Conditions existing after harvesting and during storage may affect the relationship of the protein particles to each other or, in other

OFFICIAL CONVENTION POSE OF THE OPERATIVE MILLERS AND

words, the environment. It may be that some wheat varieties have more of the substances which affect the environment than others. This is a subject for research.

The Analogy of the Rope Fiber

Let us use another crude illustration. The strength of a rope depends upon the quality of its fibers, the number of the fibers, and the environment of these fibers. The more fibers the stronger the rope, the quality being the same. The rope may be too weak to support a given weight, because it has too few fibers, even though the quality is good. The rope may also be too weak because of the poor quality of the fibers, although the rope is apparently large enough. The environment is also important. There would be no strength in the rope unless there was friction among the fibers; that is, when the fibers are pressed closely together in the strands they do not slip easily on each other. If there was no friction there would be no tensile strength. A good rope may deteriorate if the fibers are subjected to conditions which cause rotting or anything that weakens the strength of the individual fibers.

Applying this illustration to dough, we can see that in a strong dough there is a sufficiency of good quality filaments. The dough may be weak because there is too small an amount of protein material to make these filaments, although the quality is good. The dough may also be weak because of the poor quality of the filaments, although there are enough. The same way as the fibers in a rope may be weakened by a condition which caused rotting, similarly the filamentous protein material may be weakened by unfavorable conditions during harvest, as well as storage. For instance, the quality of the protein in bin burnt wheat has been injured, but the quantity has not been materially changed.

So far we have dwelt mainly on the property of gas retention. Gas production also is important. Dough will have good gas producing capacity if there are present in it conditions suitable for vigorous yeast action. These conditions are met by an abundance of good yeast and a plentiful supply of yeast food. Diastatic activity of flour is sometimes mentioned as one of its important characteristics. It is important, because it helps to produce more yeast food in the later stages of dough fermentation. This action is of secondary importance, since in a flour of low diastatic activity this deficiency can be met by adjusting the fermentation period and an abundance of yeast food. In a good dough there must be a well-adjusted balance between gas producing and gas retention. The gas must be sufficient to give a properly ærated dough. The gas retention must be such that the bubbles will be well distributed throughout the dough mass. Uneven distribution results when bubbles coalesce by breaking the films. This causes a coarse bread or large holes.

We know less about the environment affecting the gluten fibers, or at least less attention has been paid to this environment. We have already noted the importance of the particles slipping on each other, and the role that water plays in this slipping. The strength of the film making properties of water is related to the force known as surface tension. The surface of water behaves as though a skin covered the surface. While the skin is very weak, yet under suitable conditions it may be made to support a steel needle. It is this force which causes drops of water, under suitable conditions, to assume a spherical shape. This force in the water may be weakened by the addition of certain materials. A small amount of water placed on the surface of a flat piece of ordinary clean glass draws itself together in a small heap. This is because of the pull of surface tension. If a drop of alcohol is placed on this heap of water, scattering takes place. This is because alcohol weakens the force of surface tension.

The Purpose of Fermentation

The purpose of fermentation is to develop the dough. During the fermentation, there are produced small amounts of acids and alcohol, as well as other substances. These substances are very important in dough development. The addition of lactic acid, in very minute quantities, makes possible short-time breads, or those made with a short fermentation. Short-time breads also may be made if a small amount of alcohol is added to the dough. It is very probable that acids and alcohol assist in dough development, because of the effect they have upon the environment of the protein particles.

There is another class of substances present in flour, known as phosphatides, and they are set free by the process of fermentation. We have found in our laboratory that they are very important in dough development. For the present, we may say that they partake somewhat of the nature of fats. The importance of the slipping of protein particles on each other has been mentioned. The phosphatides seem to facilitate this slipping. Egg yolk contains an abundance of these compounds. Lecithin is a purer form. If egg yolk or lecithin is added in mixing dough, a very satisfactory bread may be made without the usual amount of fermentation. Since phosphatides are liberated during dough fermentation, they assist very greatly in dough development.

Some of the substances dissolved in the water films on the dough enter into the gluten particles. In doing this they affect the quality of the gluten. This has been shown by experiment. If strings of gluten are suspended in a dilute acid solution, they will first swell, then become soft and more pliable. If the process is allowed to go on, they weaken, and finally disintegrate. This helps to explain why the formation of acid as dough ferments makes it more pliable, more easily stretched or more elastic. This is due to the effect of acid on the gluten strands.

Resistance of dough to mechanical action is one factor in evaluating flour quality. Such a quality was of minor importance before the advent of modern machinery. Now, a flour must give a dough that performs well in these machines and is not easily injured. Why is dough injured by severe mechanical treatment? Probably due to the tearing or breaking apart of the filaments in the individual protein particles. It is possible to overgrind flour. Overgrinding injures the gluten. We have found in our laboratory that dough is injured more easily mechanically if it is a little stiff. In this case there is less easy slipping of the protein filaments in the water films. In a sense, expanding gas bubbles have a mechanical effect on dough. As each bubble expands, the fibers in the film are stretched and, after knocking down the dough, the stretching is repeated. This mechanical effect of fermentation is probably of small importance in comparison with the effect of the byproducts produced during this process.

Some one may say that this is too much speculation or too much theory. My only excuse for giving this somewhat imaginary picture of what takes place in the dough is that we may understand better some of the factors that determine quality. When we do not see things, and when we cannot see them, we must reason into the unseen and base our reasoning upon things that we see and know. This is a very common method of scientific analysis. No one has ever seen the individual chemical molecule; yet the chemists speak of molecules in the same realistic way as they speak of golf balls. No one has ever seen atoms, but the chemists think of them being just as real as the miller thinks of bran coat, endosperm, germ, flour particles, and bran specks. While we do not see the individual atom or the individual molecule, we know their properties, because of their action in mass and in solution. We cannot see the electron, but we know of the electrons and of their action in the radio and in electric current. We cannot see the gluten filaments in the dough, but we may reason about their quality and the factors which affect the quality.

Evaluation a Complicated Process

This is enough to show that evaluation of quality is quite complicated. If its results shall mean anything, the procedure must be adapted to the object in view. It is the business of the mill chemist to test the different lots of wheat received by the mill, and determine the quality of the wheat as far as possible before it is milled. In doing this he needs to use the severest type of test. He should test the endurance, or reserve. He should know that the flour made from such wheat will come up to any reasonable demands. All this should be known before the wheat goes to the rolls. Then, after the wheat is milled, the flour is tested for ash to see if the separation has been as successful as it should be. Also additional baking tests are made to insure that a satisfactory product has been produced by the mill from this pre-tested wheat. The mill chemist does not make bread, he tests flour. He may use a test that will not produce good bread, but if he knows how to evaluate the results, then the test is good.

If the wheat is such that the miller can effect a clean separation between the bran, germ, and endosperm, and convert this into fine flour, the wheat has good mechanical milling qualities. However, he does not often have the ideal wheat. Some is good, some indifferent, and some is bad. His skill is tested by making the best possible flour from the wheat available. He must adapt the conditions of milling to the characters of the wheat. These vary from lot to lot, from time to time, and from one year to another. No simple rule can be laid down for him to follow; if there could be, the skilled miller would lose his job, as then any one could run the mill by rule. But such is not the case, as long as we have to deal with such a wide variation in wheat and in external conditions of milling.

The baker makes the best products from the most economical flour. He may wish for a better flour, but it may not be profitable to use. His skill comes in if he can make the products demanded by his trade from the flour available.

This all means that there is a large element of art in both milling and flour testing. There is a difference between skill and art. The man who works according to rules may be skillful, but he does not possess an art. He may be simply an attendant on an automatic machine. To possess an art a man must possess such a degree of intelligence that he is able to vary procedures to suit changed conditions. The man who simply knows how to run protein, moisture, and ash tests may be very skillful, but he is not a chemist. To be this, he must know how to interpret the results in terms of quality which will meet the demand of the mill's trade. A man who mills according to rules is not a miller. No man can mill successfully according to rules. The rules are good, but there are times when he must know more than the

rules. The miller will acquire the art of milling when he operates the mill according to the best-known principles. Such a man has skill in applying his knowledge of milling, and his native ability in producing the best flour possible from the wheat available. Without such an art, all the good quality in wheat will not make good flour.

How Is Milling to Be Further Improved?

By Alex Gillespie

Superintendent of the M. D. King Milling Co., Pittsfield, Ill.

A paper read and discussed at the thirty-third annual convention of the Association of Operative Millers at Minneapolis on June 8.

TO fulfill the terms of the title of this paper requires that a survey be made of each milling department for the purpose of locating our distance from the constituted methods of today to the improved or perfect methods of the future, as we may vision them in each case. I think it is a splendid thought to try to chart our future path to improved milling methods, for by this means it must at least encourage, stimulate and guide inventive thought to reach our goal more surely and sooner than were our pathway to perfect method uncharted. Also, the Association of Operative Millers, in convention, is the proper place to make a forecast of future improved milling methods, for it is here that these matters can be properly discussed, where error of thought may be revealed, and harmony of thought established to promote progress in the milling of wheat. The improvements we are seeking must have greater utility than the prior art, and have perfect control of method. Our survey must be brief, touching only the high spots in each case considered.

I do not think we can claim that there is much method for the system of tempering wheat we use today, because we have no manner of tempering control. To send wheat to first break rolls carrying a stated moisture content may show uniformity of practice, but that does not mean tempering control, because we cannot tell, above the first break rolls, where the added tempering water is located; whether it is all in the bran, or what part has really entered the interior of the kernel. This information is found under, and not above, the first break rolls. The chemist, it would seem, started us off on the wrong foot on this problem, and we are still going. When we can mellow the interior of the kernel to a desired degree in a limited time—the bran will always be taken care of—then, and not until then, will we have perfect control of the tempering of wheat.

Also, if we consider a kernel of wheat as having two lobes, each measuring less than 1-16 of an inch through its thickest part, it must be evident that, as the tempering water approaches each lobe from two sides, it will have to percolate only 1-32 of an inch to reach the center of each and thus temper the whole kernel. So, if the innermost layer of bran were not impervious to water in its liquid state, would it require the time we temper for the tempering water to percolate 1-32 of an inch, including one thickness of bran, and yet find hard middlings under the first break rolls? I do not claim that the innermost layer of bran cannot be broken down, but I do claim it is not broken down by the measure of water applied or in the tempering time usually allowed for this purpose. The opposite theory is inconsistent with our experience.

Approaching our problem from another angle: A kernel of wheat possesses what are called stomata—breathing pores through which it obtains both meat and drink from the air. If the aggregate capacity of these pores is equal to the demands of the kernel itself, but comes far short of tempering demands, what are we to do? Wait? There is a possibility that if wheat were subjected to highly humidified compressed air it might expedite tempering, although the resistance within the wheat itself would, I believe, make this method too slow to be practical. The method of the future, as I view this problem, considered from the standpoint of time, proper distribution of moisture, and perfect control, is to split or fracture the kernel, then to add the tempering water.

Passing on to the cleaning of wheat, the first step in the future will be the same as today, namely, the elimination of everything unlike wheat or unfit to make standard flour from; the remainder will be pure wheat in the rough. Picking up a kernel, we find hairs on one end; on the other we find the germ, and adjacent to it the microphyle, as excess bran. When we are able to eliminate all three and polish the exterior, we will be able to send wheat to the rolls as clean as we are ever able to send it there, with the bran coat on. Our goal is not far in the future, I hope.

Perfect decortication of wheat requires that the kernel be split through the crease: and when this is done it exposes the starch where the split occurs. Assuming that perfect decortication of each half of the kernel is possible, the wastage from the exposed starch would annul the practicability of the method. So perfect decortication of wheat is not practical; but is partial decortication practical? The outer layer of bran, or bee wing, as it is sometimes called, is the only layer of bran that can be peeled off separately. All the other so-called layers are interlocked cellularly, and cannot be separated. Now, to peel off starchless flakes of bran will always be an impossibility. We know this from grinding wheat under more disruptive treatment than could be permitted in a decorticator. The alternative method is to scour the bran from the kernel, but if scouring is stopped short of the starch it will leave the kernel in a worse milling condition than before treating, and if scouring is continued to the starch, regulative control to stop there will ever be lacking. So partial decortication of wheat is not practical. But assuming that partial decortication is practical, would bran dust have the commercial value that standard bran would have? This is a problem that can be safely left to "George" to play with.

Bolting cloth, to me, is a perfect fabric—perfect mesh. Uniformly it rejects all material larger than its mesh, and to that degree makes perfect separations. All that bolting cloth can do, and all that it can ever be expected to do, is to make separations. Its proper application must rest with the intelligent miller. Some time we will have an improved flour bolter. It will be such that, inch for inch of cloth used, it will have greater capacity than the flour bolter of today. Also, to prevent bare bolting it will be equipped with means whereby the cloth may be cut off, using only that part of the bolter necessary to dress out the flour, and no more. Air will have a part in the bolter of the future, and eventually, I am inclined to think, bolting cloth will be eliminated entirely for flour dressing purposes and flour separations will be made by air alone. Edgar Miller is furnishing flour mills with pure air. Perhaps it is the forerunner of the simplification of dressing flour. Who knows?

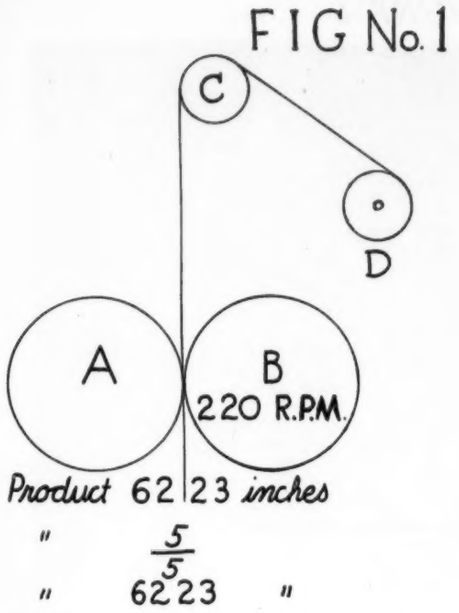
To find a mechanism that will supersede rolls and the modern roller mill will be quite a task, as I view this problem; because if a pair of corrugated rolls revolve at the same speed, wheat may be passed between them and fractured; or if these are given differential speeds, wheat may be passed between them and ground to any degree of fineness, and the grinding zone will not be more than 5/8 of an inch, grinding any kind of wheat. So to evolve a mechanism having less than 5/8-inch grinding zone, and to receive wheat without slippage, and do the same quantity and quality of work, using less power, will have both novelty and utility of a high order. However, the modern roller mill will be improved in some details as experience dictates.

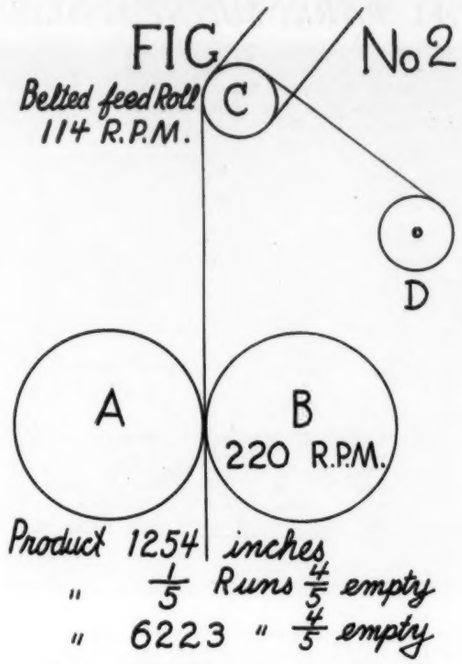
With the exception of middlings purification, I have tried to make a survey of each milling department, endeavoring to forecast the ultimate improvement in each case; and after due consideration of the value to be gained in each department, I have to acknowledge that the greatest gain to be realized in any one individual department will be found in the perfect feeding of wheat stock to rolls. The middlings purifier is a "necessary evil." Because of its being, and because of our dependence upon the purifier, it has functioned as a smoke screen, blinding our vision to the real merit of a perfect feed to rolls. All of the impure matter handled by the purifier, all the impure matter scalped off after the various middlings reductions, all the impure matter we have to fight throughout the whole milling system, have been made on the break rolls. Our thought, time, and effort in the future should be applied to the production of pure middlings from the break rolls; and if we can realize our goal, and with the aid of pure air, it will make possible perfect flour separations without the use of bolting cloth. We may not realize our full hope soon, but the nearer we come to its realization the nearer we will come to the perfection of method of wheat milling. There is something in knowing just where our goal is located.

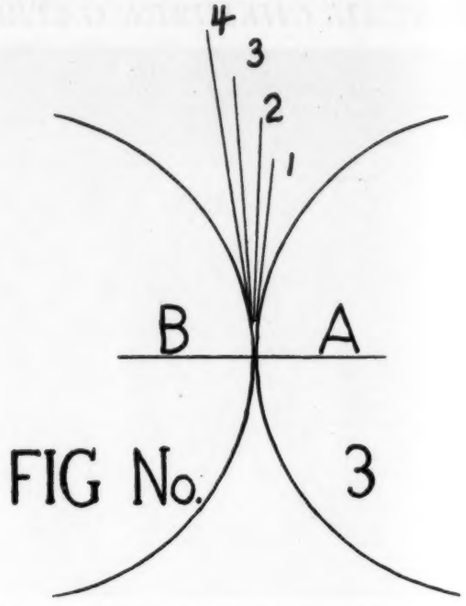
To explain my position, and to show cause for impure middlings, I will use figures No. 1 and No. 2, shown herewith. Figure No. 1 shows two circles A and B to represent one pair of 9-inch rolls. The speed of slow roll B is 220 revolutions per minute; C is a loose pulley 3½ inches in diameter, to represent a feed roll; D is a pivoted roll of paper, a part of which is unwound and passed over the loose pulley C and down between the rolls A and B.

Figure No. 2 is an exact duplicate of figure No. 1, except that in this case the pulley C is belted to revolve 114 revolutions per minute. Assuming that the slow roll is the holding roll, then if equipment No. 1 is operated one minute the paper product will be 6,223 inches, because 6,223 inches is the periphery travel of the slow roll. And if equipment No. 2 is operated for one minute the paper product will be only 1,254 inches, because 1,254 inches is the periphery travel of the belted feed roll C. Now, as 1,254 inches is approximately one fifth of 6,223 inches so, then, in the same time that equipment No. 2 ground one fifth, or 1,254 inches, of paper, No. 1 ground five fifths, or 6,223, therefore the rolls of equipment No. 2 must have run four fifths of the time empty. There can be no other conclusion found from these premises.

Again, if we make equipment No. 2 produce the same quantity as No. 1 in the same time, No. 2 must grind the paper five-ply thick. Here again we experi-







ence an awkward situation, for when equipment No. 2 grinds paper five-ply thick it makes both equipments equal in production in the same time, but the rolls of equipment No. 2 we find still to be running four fifths of the time empty; because the speed of the belted feed roll has not been changed. So we can understand that, with the exception of the manner of feeding, two equipments may be identical, produce the same quantity product in the same time, and yet the roll equipment of one will run four fifths of the time empty.

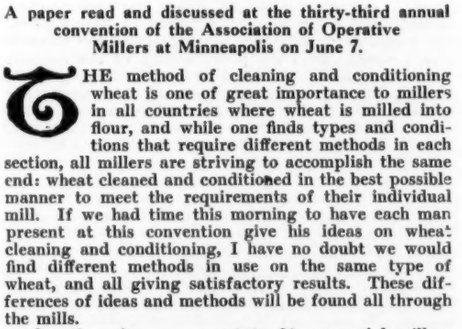
The area of a cross section of third break chop, in a spout of about 60 degrees pitch, feeding a double stand of 30-inch rolls, is less than one square inch, but it requires an area of 11 square inches, or 60x3-16 inches, between feed gates and feed rolls to feed it out. Does not this show overlapping of chop feeding fully corroborating our findings with equipment No. 2? Because of slippage, and scouring, and the throttling of chop, or middlings, speeding up feed rolls, or any other type of feeder used today, will not cure our feeding problems.

Substituting chop for paper, I will use four pieces of chop to show effects of bad stock feeding to rolls. Figure No. 3, which appears herewith, shows segments of two 9-inch circles, A and B. A segment represents the fast roll, and the line C their horizontal diameters. Four pieces of third break chop placed together will measure one eighth of an inch thick, and these will enter the grinding zone one half of an inch above the line C, as represented by line 1, 2, 3, 4. Chop No. 4 lies against the slow roll. Assuming that these chops will hold their relative positions, then if chop No. 2 is ground, what must be the effect upon chop No. 1? Also, if chop No. 4 is ground, what must be the effect upon chops Nos. 1, 2, and 3? The result is that chops Nos. 1, 2, and 3 will be more or less pulverized, and when this result is multiplied four times—five-break system—it will account largely for the impure middlings that call for purification, and also the impure matter we must fight throughout the whole system of milling.

For your consideration I am presenting a feeder idea to feed wheat stock, either chop or middlings, to rolls. It may not be ideal in all details, but it may at least encourage and stimulate inventive thought to find our perfect feeder.

In Figure No. 4, reproduced herewith, A is a conical spout; B is a circular corrugated hood the diameter of which is the same as the length of the rolls it serves; C is a concave disk; D-D are corrugated saddle boards, the comb of which is equidistant and parallel to the rolls axes; E-E are corrugated deflecting boards; F-F are two pairs of rolls.

It will be very evident that the circle of stock delivery to the rolls will always be controlled by the circular hood surrounding the disk. So when this equipment is operated, stock falling on the center of the disk will be discharged over its periphery in a perfect sheet or ring; it will then be arrested by the hood and delivered to the rolls. The features of this idea which I wish to stress are as follows: That because of the position of the comb of the saddle boards, the stock discharged from the disk will be divided perfectly between each pair of rolls. Also, the disk may be revolved at a speed that will individualize every fragment of wheat passing over its periphery; and because of the corrugated hood and deflecting boards, I believe its individualized identity will be maintained until it is ground, or the disk may be given a higher speed, such that every fragment of wheat passing over its periphery may be spaced more than is necessary, and the spacing maintained until it is ground. These features indicate perfect division of stock and perfect control. If the disk has to handle a slight increase or decrease of stock, the grinding will not be materially affected by the change. When this equipment is once set it should require no further attention; and, too, there can be no accumulation of stock anywhere. When we find the perfect feeder we will then be able to lower our roll differential from a frictional or grinding differential to a separating or detaching differential, if pure middlings is our aim. Also, we will never find our perfect corrugation or the proper arrangement of corrugation for the various purposes of grinding wheat or chop until we find our perfect feeder. It may be here now, but we have failed to recognize its presence, and the reason is obvious. I am fully convinced that perfect feeding of wheat, chop and middlings to rolls will improve milling further than will the attainment of perfect method in any other department thereof, vision our interests as we may.



The Theory of Modern Wheat Cleaning and Conditioning

By C. M. Parks

Superintendent of the Bay State Milling Co., Winona, Minn.

A paper read and discussed at the thirty-third annual convention of the Association of Operative Millers at Minneapolis on June 7.

THE method of cleaning and conditioning wheat is one of great importance to millers in all countries where wheat is milled into flour, and while one finds types and conditions that require different methods in each section, all millers are striving to accomplish the same end: wheat cleaned and conditioned in the best possible manner to meet the requirements of their individual mill. If we had time this morning to have each man present at this convention give his ideas on wheat cleaning and conditioning, I have no doubt we would find different methods in use on the same type of wheat, and all giving satisfactory results. These differences of ideas and methods will be found all through the mills.

Questionnaires were sent to 20 successful millers in different parts of the states. From their answers I have the following information: Three mill hard winter, two soft winter, seven soft and hard, and eight spring wheat, with cleaning capacities ranging from 40 to 60,000 bus per hour. Moisture on wheat as received runs from 10 to 13.6 on soft, 12 to 13.2 on hard winter, and 12 to 13.4 on spring. Temperature of wheat as received at head of cleaning system runs from 52 to 60 degrees Fahrenheit on hard winter, and 40 to 60 on spring. The soft wheat mills report temperatures the same as outside. These temperatures all were taken in March, and of course, in the spring wheat sections, wheat will come to the cleaning systems at a considerably lower temperature in extremely cold weather. Four of these mills use no heat in tempering, four use heat in cold weather, three use hot water, and nine heat all the time. Five pay no attention to temperatures of wheat while it is being conditioned, one has room temperature, one a temperature of from 100 to 110, three 85 to 95, and the others 60 to 70. As a rule, spring wheat is carried at a lower temperature than the winters.

Ten wash all their wheat, two wash all smutty wheat, and the balance use no washers. Only two mills of the 20 are troubled with garlic and onions. One tries to remove these by ordinary cleaning; the other dries his wheat to about 10 per cent moisture, then stores until onions can be removed with air, which is considered the better method.

In the cleaning departments we find a large variation of methods or arrangements of cleaning machinery, though the first part of the systems is about the same; that is, grain being received is in most cases rough cleaned before storage. A few store without this, and make the rough cleaning when grain is taken from storage. From this point on we find three or four different methods, due to the nature of the wheat and foreign substances contended with. In the Pacific Northwest and some other western states, where soft smut is found in some of the wheat, and due to the fact that this smut has a tendency to rub into the wheat, a washer is used, either ahead of the storage bins or when it is taken from storage. The plan generally used is for the washer to follow storage; then temper. After tempering come the scalping and aspirating, followed by machines for removing oats, seeds, etc., then aspiration and another temper, followed by aspirator and third temper. This is followed by double scourer, with aspirator ahead of the rolls.

In the hard wheat section of the Southwest it is customary to use a machine on the grain as it comes from storage, for scalping and aspirating. This is followed by machines for removing oats and seeds, then either scourer or washer; and as few of the mills in this section wash all of their wheat stream, a scourer is generally used, and in some cases two. Following this is the main temper, except where main part of tempering is done before cleaning is started. Following this is another scourer or aspirator, then temper, followed by scourer and short temper, then by aspirator ahead of rolls.

As a rule, in the soft wheat territory we find the percentage of moisture in natural wheat high and, unless the mill is equipped with driers, very little washing and tempering is done.

Following receiving and milling separators are machines for removing seeds and oats, then two or three scourers and aspirators. In drier soft wheat sections, and where washer is used, soft wheat is conditioned much the same as hard, with the tempering time shortened.

In the northwestern spring wheat section much the same order is followed as in the hard winter, except that more mills are washing all of their mill stream,

regardless of its condition; and as this wheat contains more seeds, oats and other foreign material, more machines are used to remove them. In the spring wheat section, where the dry cleaning method is used, it is the general practice to have two scourers, and in some cases three. Where a wheat washer is in use, there is one scourer, or not more than two, and when two, both are doing very light work; whereas in other hard wheat sections we find three or four.

The general practice in tempering of wheat in the different sections is about as follows:

Soft, 1 to 6 hours; most mills tempering 4 hours.

Hard winter, from 6 to 80 hours, with 12 about the average.

Spring, from 4 to 14 hours; most mills using around 8.

Whether all tempering is done at one time is a matter of miller's judgment. Most mills are planned so as to allow two or three tempers, with the main one first and the following tempers shorter, to care for change in wheat and the weather. These will be found to be the general practices in different sections of the states, unless some local condition or practice causes them to be changed.

From an American milling engineer we have the following information about wheat conditioning in some of the foreign mills:

In English mills, due to the various countries from which their wheat is obtained, they claim to have developed the washing and conditioning process to a higher degree than has been done in the States. In the large mills the different types of wheat are washed separately, and then sent to separate conditioners. The balance of the wheat cleaning system is very similar to that used in this country.

In the German cleaning systems designed for use in Brazilian mills, we find this order of machines: milling separator, needle or seed machines, scourer, washer and whizzer, driers, scourer, tempering bin, followed by two scourers ahead of rolls.

The wheat cleaning problem in China is different from that of most other countries, since they have about double the number of cleaners used in American systems. This is due not entirely to the quality of the wheat, but to conditions under which it is harvested, and also to the fact that outside dirt is added to the wheat while in transit. This is a condition that the Chinese millers are unable to control, for although they have enough dirt in the wheat in certain sections when harvested, they have to contend with that deliberately added while the wheat is on the way to their mills. Their line-up of cleaning machinery is about as follows: split stream, two receiving separators, two milling separators, two cockerel machines, two scourers, tempering bin, scourer, milling separator, horizontal brush machine, rolling screen, cleaned wheat bin. A large percentage of the dirt comes out at the head of the system, which accounts for the additional capacity used. The tendency in China is to wash all wheat, regardless of its condition.

It is rather hard to compare conditioning problems of one section or country with those of another. Methods used with good results in one place could not be expected to give the same good results when working under conditions other than the ones they are intended for. Very few, if any, American mills have the varieties of wheat or milling conditions of the English mills. The same could be said of other foreign mills and different sections of the States.

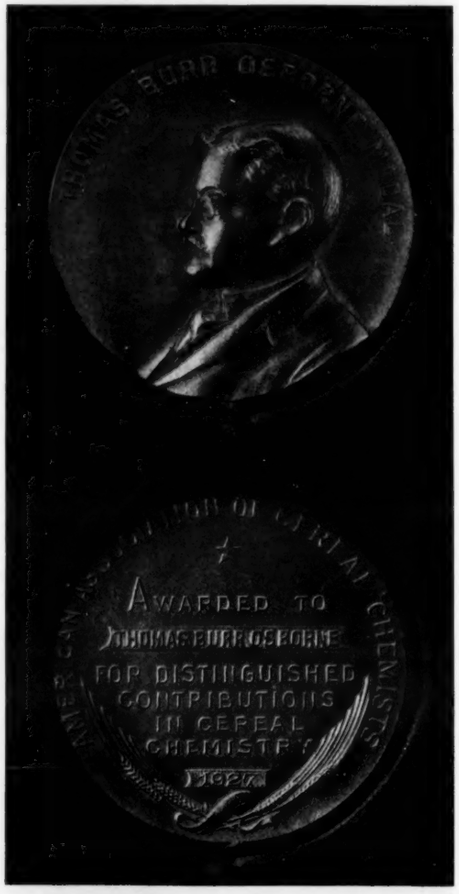
As regards temperatures during the conditioning period: In a spring wheat mill, where wheat blend and rough separations are made in elevator, and wheat then sent to storage bins large enough to allow 24 hours' storage in warm bins before cleaning and conditioning is started, and where heater is used following these bins at head of cleaning system, we have the following temperatures of wheat taken at different points in conditioning and cleaning:

	Degrees						
At bin	20	30	48	50	58	64	74
Following heater	50	54	60	66	70	70	74
Ahead of washer	60	62	66	70	74	72	76
Temperature of water used on washer	70	70	60	108	72	72	52
After washing	64	65	62	74	72	74	68
Going into tempering bin	64	65	64	74	72	74	68
Following tempering bin	63	64	64	74	70	73	72
Ahead of first scour	65	64	66	74	70	73	74
After first scour	66	68	76	76	72	75	76
Ahead of second scour	66	68	76	76	72	75	76
After second scour	69	72	79	78	74	76	79
At rolls	74	76	78	76	76	76	80
Moisture on wheat from storage	13.0	13.2	13.0	12.8	13.0	12.6	12.4
Following washers	14.2	14.4	14.4	13.7	14.0	13.7	13.6
At tempering bin	15.4	15.5	15.6	15.4	15.3	15.2	15.4
At rolls	15.5	15.5	15.6	15.5	15.4	15.3	15.6
Temperature of cleaning house	74	78	78	76	73	76	82

These temperatures are averages taken at different seasons of the year, with the exception of the one where water to washer was carried at 108 degrees. This was run as a test, and in this particular case had no effect on results obtained, as other temperatures are about normal. When old wheat is being conditioned and the water reaches a temperature where the wheat is 70 degrees or above, heat is turned off in the heater and cold water, instead of warm, is used on the washers. However, on some crops it has been found beneficial to use heat in conditioning new wheat; and this has been the case the past four or five years. Some millers use warm water for washing wheat at all seasons of the year, believing that warm water does better cleaning than cold.

In the construction of tempering bins, we find all sorts of arrangements. Some prefer round, others square with inverted hoppers, while there are some, I am informed, who use the same type bins with supports every 10 to 12 feet, these supports built so as to take up the weight of the wheat, causing it to feed evenly from all sections and not through the center. This prevents the wheat on the outside remaining stationary. Where bins are not too high and too large in diameter, this construction gives very good results. Where space will permit, the better plan is to have the bins constructed so they can be emptied at the end of each tempering period while another bin is being filled with tempered wheat. These bins should not be over 5,000 bus capacity each.

Almost every miller has his own pet plan for regulating the flow of water to the tempering conveyor, and several regulators have been placed on the market within the last few years, most of them used only a short time, then discarded. The correct regulation of the amount of water used in tempering is very important. Moisture should be determined at different points in the tempering system for a check, as well as



The Thomas Burr Osborne Medal Awarded by the Association of Cereal Chemists

to make certain that the correct amount is being carried in the wheat to give the desired moisture at the rolls.

It is a good plan to have a magnetic separator for removing all metallic substances at the head of the cleaning system, as well as another just over the first break roll; or, if this plan is not followed, have a small machine on the screenings and one over the first break. It is also important that accurate feeders be used for blending and keeping a regular flow of wheat through the cleaning system and into the mill. Clean water should be used for washing and tempering, and all cleaning machinery supplied with clean air. Drawing air heavily laden with dust or dirt into the machines certainly will not produce the desired results.

For cleaning machinery, most any of the standard lines work satisfactorily. Up to a few years ago the milling separator was about the only machine for rough and fine scalping, with the old type cockerel cylinders and spiral seed separators used for separating seeds from wheat. Now we can choose from the disk machines, as well as a few others, including the cylinder machines. Most millers have one or several disk machines in their plants, and it would perhaps be difficult to again use the equipment in vogue before these machines were adopted. We find the disk machines used for removing oats and other substances larger than wheat, as well as the smaller seeds. For aspirators there are several that do first class work, both open and closed, and we have a good supply of washers, scourers and heaters. With all these machines, each special make or style is loudly praised by certain millers, and there is no doubt that each fills a need in the wheat cleaning problems of the country. On capacities of these different machines, the best plan is to follow the suggestions of the manufacturers, as there are so many different conditions to be considered in arriving at the quantity of wheat that can be properly cleaned; and since there is no set rule to follow, it is almost impossible to say what size machine should be used, unless the wheat to be cleaned and the results desired are known.

One manufacturer of a well-known line of cleaning machinery rates the capacity of the receiving separator as 75@80 bus per hour for one square foot of standard sieve surface, and 37@48 for one square foot of extra fine sieve surface. For standard sieves, 32/64-inch perforation at head of sieve is used, and 22/64 at tail. For extra fine sieves, 26/64-inch at head and 20/64 at tail.

On the one-sieve milling separator, 7@8 bus per hour is figured for one square foot of standard sieve surface, and 5@6 for one square foot of extra fine sieve surface. For standard sieves on spring wheat, 16/64-inch perforation is used at head of sieve, and 14/64 at tail.

For standard sieves on winter wheat, 17/64-inch perforation at head and 15/64 at tail.

For extra fine sieves on either of these two wheats, the same size perforations are used, except less of the larger and more of the smaller ones.

Another manufacturer gives capacity on receiving separator, clothed with 26 round hole sieve, as a little over 100 bus per hour per square foot. The capacity per hour and the square inches per hour bushel on horizontal scourers are given by another well-known line as follows:

R.P.M.	Bushels per hour	Square inch	Square inch per bushel hour
700	10	616	61.6
650	20	704	35.2
650	30	905	30.2
600	45	1,102	24.5
550	60	1,525	25.4
525	80	1,805	22.5
500	100	2,119	21.2
425	150	2,542	16.9
400	200	3,105	15.5
375	250	3,516	14.0
375	350	4,392	12.6
375	450	4,955	11.1
375	600	5,377	9.0

When looking at the square inches of scouring surface and square inches per bushel hour as given in this table, it may appear confusing, but it must be remembered that the speeds vary and that, as the scourers increase in size, there is a greater capacity to the square inch than on the smaller sizes. In all probability this table is reasonable, for it has been proven the machines will handle their rated capacities as specified for the sizes mentioned in the table, but cannot be overloaded to any extent.

Practically all cleaning machines in use today will perform satisfactorily at rated capacities if properly installed and operated under normal conditions, and I believe it is useless to consider further the capacities of the separate machines.

The cleaning departments should be arranged so that they require a minimum of power and labor for operation. Quite a difference of opinion will be found among millers as to just what is classed as clean wheat. We all know that, with the machines in use today, it is impossible to get absolutely clean wheat without some loss: either a small percentage of screenings and foreign material remains in the wheat, or a small percentage of light wheat goes into the screenings. Considering final results, quality of flour, yield, etc., I think the better plan is to have clean wheat, losing a small percentage of the lighter wheat in the screenings.

Some time ago, while in a mill equipped with modern cleaning machinery, I found that after it had gone to the expense and trouble of cleaning the wheat, most of the small cracked wheat, seeds, etc., was returned to the rolls with the cleaned wheat. I asked the head miller the reason for this, and he informed me that because of the very low price at which the flour had been sold, something had to be done to cheapen the mix. I then asked if he was not afraid of a quality complaint, and he replied: "The customer could hardly complain, considering the fact that he is more interested in price than quality." Cleaning and conditioning problems would not worry this miller. However, very few mills have customers who desire flour of such quality, and most of us are aiming to produce a superior product.

Millers in this country have a poor opinion of the bandits or outlaws in China who steal wheat from boats while in transit and replace it with trash and dirt. However, most of this refuse can be removed from the wheat by extra cleaning, which is more pardonable than the tactics of some of our wheat handlers, who add inseparable foreign materials, damaged wheats and other grains to wheat in order to increase their profits, this being made possible by the reasonably safe margin allowed in our dockage regulations, grades, etc. During the past few years considerable research work has been carried on to determine what percentage of damaged wheat, corn, cockerel, rye and other substances wheat will carry before there is a noticeable effect on the baking qualities of the flour.

In no case has it been found that added percentage of any of these materials produced better results, and most quality millers would be well pleased to leave them out of the mix and, instead, give their attention to improvement in quality.

All millers realize the importance of having a good chemist to make complete tests, including protein, moisture, milling and baking tests on all wheats as they are received at the elevator, binning them according to grade and laboratory tests, thus having at all times correct percentages of the different types of wheat in the blend to insure a uniform flour.

It is my belief that most wheat storage bins as constructed today are too large, for the reason that when quantities of wheat of a uniform test weight are stored in a bin of, say, 40,000 bus or more capacity, it is impossible to draw a uniform grade from these bins. As a rule, the first 10,000 to 15,000 bus will run at about the storage grade and dockage; the next 20,000 will run a higher test weight, with a lower percentage of dockage than the average stored in the bin; while the remaining 10,000 will run from one to two pounds lower test weight and, in some cases, where the wheat when stored carries an average of ½ to ¾ per cent dockage, the last 5,000 to 10,000 bus will run as high as 4 per cent. Unless provision is made for special hoppers in storage bins, or some arrangement worked out whereby the wheat can be drawn down evenly, it would seem advisable to have storage bins of 15,000 bus capacity or less.

I believe there is room for improvement in most cleaning and conditioning plants. More study should be given to the temperature at which wheat should be carried while being conditioned. More aspiration would help to improve the condition of wheat going to first break in some mills, and all wheat, regardless of condition, should be washed before being milled. This would, of course, make it necessary to have driers in the conditioning plants, since there are locations as well as seasons when it is impractical to wash wheat without using the drier.

Where mill mix contains both light and heavy wheat, as most do, I believe better results can be obtained if they are separated at head of cleaning system, then cleaned and conditioned separately.

The wheat cleaning and conditioning department should have the same careful attention in its operation as the mill, and, while no more important than the other departments, we all will agree that it is very essential in flour production, as if wheat is not properly cleaned and conditioned, the miller will have difficulty in producing good flour.

I believe wheat should be conditioned so as to mill with best results and produce flour that stores well and gives satisfaction to the individual mill's trade, and not with the idea of increasing moisture in the finished product. If run higher than the milling system demands, there is more loss in quality, yield and final results than is gained by the addition of unnecessary moisture.

Proper moisture and other conditioning problems of each crop should be determined by laboratory tests.

Air Conditioning and Humidity Control for Flour Mills

From an Address Delivered to the Association of Operative Millers by Louis R. Henkle, of the Lawrenceburg (Ind.) Roller Mills Co.

THE progress of civilization through thousands of years has been dependent more upon the combating of the elements of weather than upon any other one thing. There are only a few small spots upon the face of the earth where man can exist without some protection from the "weather," which really means that in some manner he must manufacture weather, or perish.

When we clothe ourselves, we are merely manufacturing weather within the confines of our clothing, preventing the dissipation of the heat generated by our body processes, and maintaining, in some degree, an equable temperature in the air which actually surrounds our bodies; and when we don lightweight and porous garments in summer, we are but facilitating the functioning of the marvelous refrigerating apparatus with which nature has provided us in our sweat glands. We build houses to keep us warm or cool and dry, making the walls of materials that will resist the intake of heat in summer and the loss of heat in winter, and in recent years we have gone to great lengths to provide means for producing exactly the right amount of heat, and no more.

If all mankind had to live in the small area of the earth's surface where the necessity for manufacturing weather is comparatively small, the world's inhabitants would be numbered by the thousands. It is altogether probable, too, that life there would be rather drab—scarcely worth the living. Also if all manufacturing processes had to be carried on in localities where the weather furnished by nature is even fairly ideal, without modification, at all seasons, a great percentage of the human race would starve within a year, and many of the things that we now consider as necessities would be lost to us in even less time.

In virtually every manufacturing plant some sort of weather is manufactured. Many industries discovered long ago that the mere application of ventilation in summer, and the provision of heat in the winter, did not meet the requirements. In milling, the oldest of the manufacturing industries, this fact has been particularly recognized for many years. Most well-informed millers know that the highest example of the milling engineers' art is a compromise. By means of long experience it is known that widely varying conditions must be met—conditions so widely varying that no possibility of providing a process flexible enough to meet them exists.

The raw material from which the miller is expected to make flour, having certain desired and definite properties day after day, is highly sensitive to both temperature and moisture. The products of wheat are not only quite susceptible to hygroscopic moisture, but also to variations of temperature. In common with many other substances, they are softer when warm and more brittle when cold, the moisture content being equal. The application of either heat or moisture serves to make the wheat grain softer.

It is well known that between the conditions prevailing in summer and those in winter, in the flour mill, there is a wide variation. Conservatively, it may be said that evaporation from stocks during the milling process is often twice as great in summer as in winter. We cannot, therefore, hope to hold the desired moisture in our finished products in very hot weather, unless we start with more in our wheat at the first break. We should remember that the mill blend is usually warmer at this time and, consequently, softer for the same amount of contained moisture. It readily will be seen that we cannot afford to make it still softer by attempting to supply a surplus of water for evaporation in that manner. In other words, wheat which has been made too wet for the purpose of allowing maximum evaporation from the stocks, while still maintaining an adequate supply in the flour and feed, will be too soft for proper breaking for, unfortunately, at the time when maximum evaporation is certain to occur, maximum temperatures are sure to prevail.

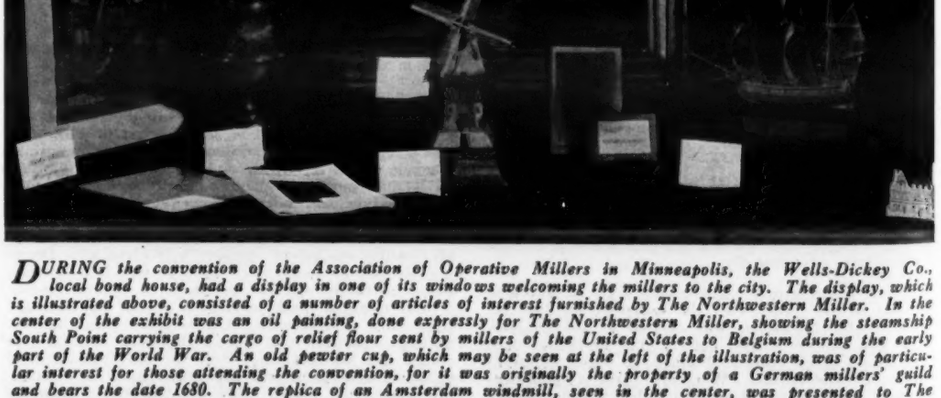
It might be thought that a remedy for too high evaporation could be found in increased ventilation of machines, upon the theory that an increased volume of air would hold temperatures down, thus lowering vapor pressure within the stocks, and decreasing evaporation. But the fact is that cooling by means of roll, purifier and elevator suction is mainly the result of evaporation. Even if we could reduce the evaporation of moisture from stocks into a given amount of air by one half, by doubling the amount of air used, we have gained nothing, for the product of two times one is the same as that of one times two. That is, two pounds of air with an evaporative capacity of one grain of moisture per pound will be capable of evaporating as much water as will one pound of air having a capacity of two grains per pound.

But the actual loss in dollars and cents occasioned by excessive evaporation in the flour mill, while serious enough, is by no means the only effect of varying atmospheric conditions upon the milling process. The effect of a change in both moisture content and temperature, which always follows a change in weather, materially affects the physical texture of the mill stocks, as well as the size of the mesh in every sieve in the mill. The writer has examined microphotographs of the same piece of silk taken under different conditions of moisture and temperature, and the difference is really most remarkable. Under a cold and dry condition the threads are compact and the meshes correspondingly large, while with an extremely high dew point temperature, which means a high temperature plus a high percentage of relative humidity, the threads are swollen until the mesh appears reduced in size by at least one fourth.

Within the machines of the flour mill, the dew point is always high when the temperature is high, because "dew point" refers to the air, and this warm air always has access to free moisture in the mill stock. When the weather gets very hot, meshes are certain to be reduced in size, regardless of whether the relative humidity, outdoors or even within the mill, is low or high.

An air conditioning system which would always maintain a low dew point within the machine could be built, provided that means for absorbing all of the mechanical heat generated, as well as a large amount of that absorbed from the sun, were furnished for summer use. Such a system would be quite costly, both to install and to operate and, after all, it is not so important that cloth meshes be kept at their maximum size. If we know that the conditions affecting the cloth will always be the same, we can easily provide the mesh best suited to this condition. In other words, there is no such thing as winter in the properly conditioned mill, nor is there any extreme summer weather, and by maintaining a constant temperature and relative humidity corresponding closely to that provided by nature, for a few hours at a time during the balmy days of spring, uniformity of cloth mesh, as well as uniformity of physical texture in the stocks, is obtained.

As I proceed further into the subject of temperature and humidity control, let me review briefly the advancement that has been made in air conditioning, and the various types of equipment used. Strictly speaking, any attempt to alter atmospheric conditions, even the opening or closing of a window, or the building of a fire, or the use of a roof to keep a certain area dry, or walls to shut out natural air movement, all may be considered as air conditioning. But because a



DURING the convention of the Association of Operative Millers in Minneapolis, the Wells-Dickey Co., local bond house, had a display in one of its windows welcoming the millers to the city. The display, which is illustrated above, consisted of a number of articles of interest furnished by The Northwestern Miller. In the center of the exhibit was an oil painting, done expressly for The Northwestern Miller, showing the steamship South Point carrying the cargo of relief flour sent by millers of the United States to Belgium during the early part of the World War. An old pewter cup, which may be seen at the left of the illustration, was of particular interest for those attending the convention, for it was originally the property of a German millers' guild and bears the date 1680. The replica of an Amsterdam windmill, seen in the center, was presented to The Northwestern Miller by the flour importers of Holland on the occasion of this publication's fiftieth anniversary. Another presentation on this occasion, seen at the right of the illustration, is a silver model of the Mayflower which was given to The Northwestern Miller by the importers of the United Kingdom. Included also in the display was a framed copy of a page from the first edition of The Northwestern Miller, while beside it lay the latest issue of the paper. On the extreme left of the illustration is a painting by Harry Fenn of an old water mill, the original of one of The Northwestern Miller's cover designs. On the extreme right is a small model made in Holland of Delft china of the Miller Building, home of The Northwestern Miller. Another view of the building was supplied by a framed copy of an etching by Pierre Nuyttens.

THE Northwestern Miller's photographer managed to "catch" a number of Canadian visitors to the millers' and chemists' convention in Minneapolis on Monday, the opening day, and the handsome results of his effort served to embellish the issue of June 6. Toward the end of the week he had even better luck. He encountered, in fact, a regular invasion of Canadians, all willing—nay, eager—to pose for a picture. Here they are, in tow of W. C. Nichols (on the left flank), business manager of The Northwestern Miller and vice president of the Miller Publishing Co., himself a one-time Canadian. Left to right, beyond "Nick," are: J. J. A. Morrison, Lake of the Woods Milling Co., Ltd., Keewatin, Ont; L. Klinck, Western Canada Flour Mills Co., Ltd., St. Boniface; Theodore Kipp, Jr., Kipp-Kelly, Ltd., Winnipeg; W. H. McCarthy, general manager Standard Milling Co., Ltd., of Canada, Toronto; Joseph I. Chamberlain, Kenora manager of the Maple Leaf Milling Co., Ltd; George H. Kelly, superintendent Western Canada Flour Mills Co., Ltd; Dr. Jan Micka, of the Trent Institute, Guelph, Ont; J. K. Pearen, chief chemist, Lake of the Woods Milling Co., Ltd.

change made in one direction (as, for example, an alteration of temperature) always will alter other properties of the air (increasing or diminishing the ratio between water vapor contained and a deficiency of water vapor), it is only when one attempts to alter or control more than one, or all, of the factors connected with "weather," that the term "air conditioning" is usually employed. In this sense it is probable that the first serious attempt toward altering or controlling the moisture content of the air was made by the textile industry.

All air conditioning systems can be placed in two classes: the central station type, and the direct humidifying type. Atomizing, or attempting to atomize water into the rooms, either by means of turbo nozzles or paddle wheels, is the direct type. Spraying or dripping water through a chamber through which air is passed, and then delivered to the rooms, is the central station type. A few cases have been known where steam jets were used in rooms for direct humidifying. Any sort of direct humidifying system simply adds water to the air, and does not remove heat. Steam adds water vapor, but also adds heat.

Perhaps the first systems used in flour mills were of direct humidifying type, but the first to be used extensively in America followed the central station arrangement. In many of these only an amount of air equivalent to that exhausted by the rolls and purifiers was treated, and this treated air was introduced directly into the housing of the rolls and purifiers. Conditioners of from 65 to 85 per cent efficiency were used, and the whole purpose seems to have been the lowering of temperatures, and the consequent increasing of relative humidity in summer. No automatic controls were used. The reduction of evaporation from stocks appears to have been the only consideration. When natural weather conditions were such as to cause little evaporation, the use of these air conditioning systems aggravated this, and the apparatus had to be closed down. The cutting of the roll housings, and the arrangements which introduced air at only one place in the purifiers, were serious inconveniences, and did much to prevent the success of this type of conditioning.

The greatest fault, however, lay in the inability to use an adequate amount of air. When air is introduced directly into roll housings, the volume must be less than that exhausted. The amount of air supplied each stand of rolls in the Lawrenceburg mill is fully six times as great as that exhausted. Introducing air directly into the roll housings destroyed the partial vacuum created by the suction fan, and allowed dust to escape into the room. The Lawrenceburg system maintains a high air pressure around the rolls purifiers and all machines and spouting in the milling department. Roll purifier and elevator suctions are undisturbed, so there is a greater difference in the pressure within the machine and in the room than before. Air always passes from the room into the spouts, the rolls and purifiers, and the difference being constant roll suction currents always exert the same force.

With the direct humidifying systems where no heat is removed from the room, an increase of temperature in summer calls for an increase in the total quantity of water in the air. This being supplied and more heat added from the work done by the machines, still more water is required to maintain any certain percentage of relative humidity. Such systems cannot produce satisfactory results except when the weather is so cold that all generated heat is required to maintain a moderate room temperature. These systems appear to be incapable of providing uniformity of conditions throughout the rooms. It is always more humid close to a nozzle, and warmer next to a radiator, and when the outdoor temperatures become so high that no radiation is needed, the use of the atomizing nozzles must be discontinued, to prevent the absolute humidity in the mill going too high. Perhaps the greatest fault with early installation of the central type is that invariably they were too small, and the conditioning apparatus used was incapable of presenting a sufficient water surface to the air treated. Ordinarily, too, no means of introducing heat were provided, and any real control of temperatures and humidities was impossible.

For the past several years, the writer, like many other operative millers, has been very much interested in the subject of air conditioning. It was my pleasure to inspect one of the first complete installations in a wheat flouring mill in June, 1920. During the early spring of 1927 it was my further pleasure to make quite an extensive trip visiting mills in the different sections of the country that had previously installed air conditioning equipment. All of the systems in operation were producing certain benefits, although some were able to do a great deal more than others. It was noticeable, however, that in the mills where air conditioning equipment of the central station type had been installed, the miller in charge was able to show material benefits that warranted the investment. Mention has already been made of the various improved types of equipment in use, and practically all of these were found, with certain modifications, during the course of my trip.

After careful consideration, the officials of my company decided to proceed with the work of installing a complete air conditioning system in the 2,000-bbl Lawrenceburg mill. The conditioning apparatus used was designed by W. H. Carrier especially for the production of "manufactured weather" in industrial plants having problems similar to those of the miller. Two other complete installations of this design having been made in flour mills and favorable reports being received on their operation and results obtained, we felt that the time had arrived when the system was past all experimental stages and would prove to be a profitable investment.

The Lawrenceburg mill is of brick constructions, with wood posts, joists, and floors. The roof is composition, with wood sheathing. Dimensions of the main mill building are 45x84. There are six stories and a basement, with a total area of approximately 300,000 cubic feet. This building is for the milling department only, all wheat cleaning and tempering, flour and feed packing, etc., being taken care of in other buildings.

In looking over available space for the air conditioner, it was decided to build a special room on top of the engine room to house the entire equipment. This room is 20 feet wide by 52 long, with 15-foot ceiling, and is on a level with the third floor and located at one end of the main mill building. It has made an ideal location for the equipment, although it could have been placed in a much smaller space within the mill building. I believe it has been worth the additional cost to have the apparatus, and nothing else, in a separate room.

The Lawrenceburg air conditioner, known as the "Type H," consists of the following equipment: A conditioning machine built of galvanized iron, in the shape of an oblong box, 10 feet wide, 9 feet high and 17 feet long and open at both ends, the bottom section of the entire machine being made watertight and serving as a settling tank for spray water. The correct water level is automatically provided by a float valve. The spray chamber is equipped with 270 sprays so arranged that they throw a uniform dense bank of fine mist. These nozzles are set in a vertical plane, perpendicular to the direction of the air flow, 160 gallons of water per minute, at 30-lb pressure, being forced through them. After leaving the spray chamber, the air passes through a set of staggered washer eliminator plates which baffle the air from right to left, so that it is "scrubbed" against the wet surface of the plates. The final set of plates is fitted with gutters which trap the free water carried in the air stream, and remove it and return it to the settling tank, resulting in the air leaving the machine completely saturated, clean and free from entrained water.

The efficiency of this air conditioner is so nearly 100 per cent that no loss can be detected by any ordinary methods, and while delivering absolutely no free moisture to the air leaving the eliminator plates, this air is practically saturated with water vapor. In securing this degree of efficiency two things are essential: the water must be broken up in such a manner that sufficient contact with the air to allow maximum heat transfer is assured, and the time of contact must be sufficient for the purpose. In our conditioner more than 100 tons air are conditioned each hour, and the amount of water sprayed in the same length of time is nearly 40 tons. But the greatest feature is the surface area of water exposed to air. The special spray nozzles, breaking the water up into a mist, giving a surface area of more than 60 square feet for each pound of air conditioned, means that in an hour the water surface presented exceeds 4,500,000 square feet.

The dew point chamber follows the conditioner, and is equipped with a graduated thermostat which, by means of a special key, can be easily and quickly adjusted for the required temperature. Four sections of fin steam coils follow the dew point chamber. Each section of these coils is approximately 12 feet high and 28 inches wide, and they heat the air to the desired temperature in the wintertime. I have found these coils to have sufficient capacity to heat the entire mill without help of direct radiation in the mill building. The amount of steam supplied to the heating coils is regulated by a thermostat located on the roll floor. The air is then drawn into a No. 11 Conodial fan, turning 287 R.P.M. and supplying approximately 52,000 cubic feet of air per minute. This fan is driven by a 30 h-p motor, although recording instruments have shown an actual power consumption of 21 h-p. The air leaves the fan through a metal duct 45x65 inches, passing directly to the main mill building, and is then distributed to the various floors, but more especially to those containing rolls and purifiers. A rotary strainer and tank are provided, which remove all dust and soot taken from the air by the spray water. A centrifugal pump directly connected to a 10 h-p motor supplies the necessary pressure to the spray nozzles. A motor driven compressor, with air supply tank, provides the pressure for operating automatic louvers and diaphragm valves. An ejector heater is supplied for heating the spray water when necessary.

The air conditioning room is equipped with two main openings for supplying air to the conditioner. These openings, fitted with ball bearing automatic louvers, supply the fresh and return air. For cold weather, the return air louvers are wide open and the fresh air ones closed. However, a permanent opening is provided for a definite volume of fresh air all of the time. This volume of air is somewhat in excess of that discharged by the metal dust collections, and is brought in regardless of how cold the weather is outside, the object being the maintenance of a definite air pressure within the building. Millers who have experienced the condition of a vacuum within the mill building during wintertime will recognize the value of this feature, providing, as it does, constant velocity and suction power to the air passing through rolls purifiers and aspirators. This pressure of air within the building also prevents dust laden air from passing into the rooms through cracks, seams, spouts, elevators and housings. No air enters the mill except that which has passed through the conditioner. The result is a cleaner mill, for smoke, soot and dust cannot come in around doors and windows, and flour dust is retained within the machine.

The return air louvers supply the means of controlling both the temperature and humidity within the mill without the use of steam, the heat generated by the machinery being utilized. When the outdoor temperature goes below 28 degrees, some steam is required, but the amount is less than when direct radiation only is used. The equipment is in itself an effi-

cient heating system, always under automatic control.

This method of control is best illustrated by the performance of the equipment on a particular day last fall. With an outdoor dry bulk of 42 degrees and a relative humidity of 97 per cent, the temperature prevailing inside the mill was maintained at 72 degrees and the relative humidity at approximately 68 per cent. During the day following, the outdoor temperature went to 62 degrees, but the extreme change within the mill only was two degrees, with the relative humidity practically unchanged. This was all accomplished, automatically, by apportioning the quantity of air recirculated, no steam whatever being used.

However, the writer is of the opinion that, as a means of lowering temperature and controlling humidity in summer, the system is of most interest to millers. We always have had some means of raising temperature in winter, though the methods heretofore employed seem very crude. Fluctuating degrees of humidity and temperature and variable air pressure within the mill have always played havoc in cold weather, though the source of the trouble has often been attributed to nonuniformity of raw material or temper. In summer, however, the operative miller knows that most of the days are too hot, for he sees conditions improve greatly during the night, when temperatures are lowest and relative humidities highest. Nevertheless, he has always been almost entirely at the mercy of the elements. In attempting to cool hot stocks by use of more air through rolls purifiers and elevators, not only were they subject to excessive evaporation but the high velocities inevitably carried good material to the fans, and to the tail of the mill or to the atmosphere. These conditions result in a heavy loss. Formerly, in the mill at Lawrenceburg, as in many others, an outdoor temperature above 90 meant one of about 100 degrees on the roller floor. During the summer of 1926, the thermometer on the roll floor at Lawrenceburg registered as high as 110 degrees. Evaporation at such times was very heavy, and it was impossible to maintain an adequate moisture content in the finished product and at the same time hold flour yield up to the right point.

The conditioning system was placed in operation on Aug. 1, 1927, just in time to go through two hot months. The highest temperature recorded on the roller floor was 84 degrees. From Aug. 1 to Sept. 20 there was a fluctuation of 59 per cent in relative humidity out of doors. Within the mill the extreme variation was about 4 per cent. On Sept. 20 a relative humidity of 97 per cent was decreased to 68, while on Aug. 1 and many times afterward, it was increased from around 38 per cent to 65. In all of this no attention was required, the operation being wholly automatic.

The Lawrenceburg mill has now completed 10 months' operation of the air conditioning system. It has been tried through all seasons of the year, and during this time the indoor temperature range has been 72 to 84 degrees, with an average relative humidity of about 62 per cent. I think this is most remarkable, in view of the fact that outside conditions have varied from 3 degrees below zero in January to 98 above in August, and relative humidity varying from 30 to 98 per cent.

In bringing this paper to a close, I would like to answer a question which often has been asked. Is the air conditioning system worth all it costs? My answer is, yes, I believe it is worth all it costs, and more.

Heat Conditioning of Wheat

HEAT Conditioning of Wheat was the subject of a paper by Dr. D. W. Kent-Jones, chemist, Dover, Eng., read on the morning of June 8 at the chemists' meeting.

A summary of the Berliner and Rüter paper (Zeitschrift für das gesamte Muhlenwesen p. 209, 1928) dealing with the recent heat treatment work of Dr. Kent-Jones was given, and some points of difference elucidated. The difficulty of the laboratory baking test was discussed, and views on this matter presented from an English standpoint. Loaf volume was not considered to be a safe criterion, especially when tin loaves were made. The loaf used for test purposes should be of a shape where the stability factor was more important, it was declared. Comparison was made between laboratory test baking and commercial practice, and in this connection the work of Meikle (Milling, Sept. 3, 1927) when testing "K-J" flour in Scotland was recalled.

Berliner and Rüter in general confirmed the effects obtained by heating, although they differed in some of their conclusions. They apparently obtained a more significant alteration in hydrogen ion concentration than did Dr. Kent-Jones (Modern Cereal Chemistry [New Ed., pp. 268-295]) and emphasized the alteration in the phosphatase activity involved. No final conclusions were reached, but it was suggested that many of the phenomena noted by Berliner and Rüter might merely be the result of the general reduction in solubility which occurred in heating due to coagulation.

The statement of Berliner and Rüter that "K-J" flour could be differentiated from ordinary flour, as it shone up an extraordinarily light blue under ultraviolet light, was thought not to be due to any heating effect, but to the granularity of the flour. Any granular flour appeared to behave in the same way without previous heating.

The opinions of Berliner and Rüter on the subject of Indian wheat flour, etc. (natural "K-J" flour), were criticized, especially in the light of the commercial experience of English millers and bakers.

General information was given as to the effect on the baking qualities of flour by a properly controlled heat treatment. The hope was expressed that these investigations would lead in the near future to a new, interesting and valuable field of research, resulting in a fuller and better knowledge of wheats and of the best ways of utilizing them for the benefit of mankind.

Corrugation and Spirals for the Various Breaks and Middlings Reduction

By J. A. Nolf

Superintendent of the W. J. Jennison Co., Appleton, Minn.

A paper read and discussed at the thirty-third annual convention of the Association of Operative Millers at Minneapolis on June 7.

THE technical part of roll corrugation has been covered very thoroughly in the last few years at our conventions by such able men as Louis R. Henkle, Alex Gillespie, James Henry Bates and Major S. Howe, as well as a very recent bulletin by Edgar S. Miller. With this technical data available, I decided that, with the help of members in each part of the country, I would prepare something along the line of what millers are actually doing with the various corrugations and spirals.

The first thing I will mention is the standard number of breaks in an American mill, which is five. I will take the Northwest, which is principally on spring wheat. One miller tells me that his fast roll speed is 530 r.p.m., that he is using the Getchell corrugation, running dull to dull, using 12, 14, 16, 20 and 24 cuts per inch with a half inch spiral per foot and a two and a half to one differential on breaks—on the first sizing 28 cuts per inch, on the second 36, a half inch spiral per foot running at one and a half to one differential, using the Twin City chunks cut, which is a round top cut; on the first middlings 36 corrugations per inch, on second, third and fourth middlings 40, all these carrying a half inch spiral per foot, with a one and a half to one differential. These corrugations are the same as on sizing, the Twin City chunks cut.

Just a word about how a line-up like this figures out in capacity. This particular mill is using .283 inch break surface per barrel, making 4 per cent total break flour. On the middlings .6 inch is being used, making a total grinding surface of .883 inches per bbl. This flour is being bolted on nothing coarser than 11XX, making two grades of flour on a percentage basis of 80 and 20, with an ash content of .40 and .80. This man says my observation proves conclusively that corrugated rolls on middlings reduce one third more capacity on a spring wheat mill, and apparently producing reputable flour, but is of the opinion that smooth rolls on middlings reduction will produce a superior color in both flour and bread, with a possible 2 per cent higher absorption in the bakery, decidedly cleaner flour and in some instances lower ash content, providing, however, that both smooth and corrugated rolls are handled in the most efficient manner.

The above is practically a standard for the Northwest. However, there is some variation in each mill, as one man will use some other type of cut on his breaks or middlings, such as Riley, Allis G, Nordyke & Marmon, or any one of the many corrugations that are being put out at the present time. Then again there is some difference in opinion as to the number of corrugations per inch used on the first, second and third breaks. Some millers use a 10 cut on first break, 12 on second and 16 on third, etc. Then there are some who stagger their corrugation, such as 10 on one roll and 12 on other roll of the first break, and so on down the line.

The spiral will run from the one half inch per foot, which is pretty well considered standard, to as much as one and one half inch per foot, with some men staggering these the same as corrugations. One man tells me he is having exceptional success by running one half inch spiral on fast rolls and one inch on slow rolls, although he uses that only on first break. Another tells me he has tried several different spirals, running from one fourth inch on fast rolls and one and one half on slow rolls, but he finds that the one half against one half works as well as any. Neither is there any fixed opinion as to the differential on corrugated rolls. There is being used in the Northwest on hard spring wheat anywhere from one and one half to one to three to one. It seems to be the opinion that the first break rolls require recorrugation more often, with coarse sizing roll coming a close second.

The average life of a corrugation, depending on steady operation, runs anywhere from six to ten months, depending on the stock it is operated on, also on the man who is operating it. The life of the corrugation depends quite a lot on the feeder on the roll. This feeder must start to deliver stock before the rolls come in contact with one another upon being thrown together.

I will say a word regarding corrugations used for durum in manufacturing semolina. The same general lay-out is used on breaks as I mentioned in the early part of this paper, with the exception that a little deeper and sharper cut is being used instead of the 18 to 19 degree angle used on spring wheat; they go up into the 20s, so as to get the sharper and deeper cut.

The corrugation being used in the Northwest on rye is principally the Getchell sharp cut, running dull to dull on the first break and sharp to sharp on the following breaks. Most of the commercial millers produce a white rye flour, although there is of course same dark rye still ground. On the white rye mill 14 or 16 corrugations per inch are customary on the first break, increasing to 30 or 32 on the last, intermediate breaks depending upon the number. Most millers want five if possible. Many millers are using chunks cut on the white middlings, while others are using the Getchell cut, running dull to dull, 32 on the first middlings, 36 on the second middlings, etc. On the tailings they run the rolls sharp to sharp, with from 30 to 36 cuts per inch, this being an average schedule on rye corrugation in this territory.

In Canada, millers are using principally the modified Allis corrugation, with what we would term the standard here of 12, 16, 18, 20 and 24 on breaks, using from one fourth to three fourths inch spiral per foot, with a differential of three to one on first, second and third breaks, two and one half to one on fourth and fifth in one instance, while in another they are using 2.8 to one differential on first break, with 2.7 to one on second, third, fourth and fifth breaks. Corrugations on sizing run from 30 to 40 cuts per inch, with one fourth to one half inch spiral per foot and a five eighths inch spiral on their middlings rolls, the differential being two to one to two and one fourth to one on sizings with a two to one on middlings rolls.

A miller from the East tells me that he is using Riley corrugations on his breaks, with 10, 12, 16, 20 and 24 cuts per inch, with a spiral of one fourth, one half and five eighths inch per foot; with a two and one half to one differential on all corrugated rolls, he is using smooth rolls on sizings, with a 40 cut on first middlings and a 50 cut on second middlings. He states that he has experimented a great deal with corrugations and spirals, but is always glad to go back to the old established standard. The main factor in keeping rolls keyed up is to have them recorrugated as soon as they show dullness, and results will be satisfactory all the time. He further says that he conducted experiments with pairs of rolls both having spirals running in the same direction, and that this was not satisfactory, middlings being too ragged; also with corrugations staggered 12 cuts on one roll, 16 on the other of the same pair of rolls, with results that were not satisfactory.

In the central states, where the wheat is mostly soft winter, the same general line-up of corrugation applies. They are using principally what they term the special 19 cut, that is, with a 19 degree angle using one half inch spiral per foot, with two and one half to one differential running rolls dull to dull. They are able to produce, I am told, a very clean middlings with this corrugation on their soft wheat; also they are able to hold their break flour down to a very small per cent. Their reduction system is almost entirely on smooth rolls.

In the West I am informed that the most popular corrugations are the Nordyke, style D, for breaks and style 12-4H on middlings and sizings rolls. The number of cuts per inch commonly used are 12, 14, 16, 20 and 24 on breaks, with 30 on coarse sizing and 44 on first and second middlings, the spiral per foot ranging from three eighths to one half inch, the differentials on break rolls two and one half to one, corrugated middlings two to one, and smooth rolls one and one half to one. It is the opinion there that, due to the fact that they are compelled to grind many different blends, ranging from very soft to extremely hard wheat, on the same mill, makes it necessary to stick by a happy medium rather than to go to either extreme in corrugation, that special style corrugation calls for extreme cuts, and they are reluctant in adopting them. Deep V style cuts have been tried in that territory and they worked well on soft white wheat, but proved disastrous when working on hard red vitreous wheats.

A very prominent mill man from the central part of our country tells me that the generally accepted type of corrugation is known as the Allis dull, or formerly the Gray, and generally known as the Dawson cut. The angle varies slightly in the different corrugation shops, but not to any pronounced extent. It is graduated from a 17 degree on a 12 corrugation for first break to 19 degree on fifth break with 24 corrugations per inch. Occasionally a difference of opinion arises as to the number of corrugations per inch for each break, and this possibly is accounted for in the size of the wheat berry, but as a rule the 12, 14, 16, 20 and 24 are considered standards for a five-break mill; as a medium between 10 and 12 for first break an 11 to the inch corrugation can be had as well as 13 to the inch. This is getting down to a fine point the merits of which can only be decided by an

actual test side by side. The usual practice is to use one half to five eighths inch spiral per foot on the corrugations, usually the latter. When corrugated rolls are used for middlings a round edge shallow saw tooth corrugation running dull to dull is occasionally used; then the spiral is one half inch per foot at a differential of two to one, but the middlings must be very clean and great care exercised in the adjustment of the rolls. We do not advocate the use of corrugated rolls except in cases where roll surface is short.

A miller from the Southwest says: "We have our own tools, they are always made from the same hob or master tool, and by the same tool maker. We furnish the shop doing our corrugating these tools. If we have work going through the shop, I visit them every day and inspect the rolls in the machines; in other words, they say I am just a 'plain crank' on roll work. The first thing the shop will do to our rolls is to test the journal, and if out of round they are ground. We never turn a roll journal. If the journals are perfect, the rolls go to the grinder. Coming from the grinder, the rolls are tested and must test as accurate for corrugating as if they were to be used for smooth roll grinding. If the grinding is satisfactory, the rolls then go to the corrugator. Our corrugation is a modification of the Dawson cut—somewhat deeper than most mills use. We have standardized on the breaks to 12, 14, 16, 20 and 24 cuts per inch, one half inch spiral per foot on all breaks, 1.8 to 1 differential on first break and two and one half to one on second, third, fourth and fifth. No. 1, first sizing 24 cuts to the inch, one half inch spiral per foot on fast roll, one and one half inch spiral per foot on slow roll, 1.4 to one differential. No. 2, first sizing 28 cuts to the inch, D to D, one half inch spiral per foot on fast roll, one and one half inch spiral per foot on slow roll, 1.4 to 1 differential. First tailings, 28 cuts per inch, D to D, one half inch spiral per foot on fast roll, one and one half inch spiral per foot on slow roll, 1.8 to 1 differential. First middlings, fine, 40 cuts per inch, D to D, one half inch spiral per foot on fast roll, one inch spiral per foot on slow roll, 1.8 to 1 differential. First middlings, coarse, 36 cuts per inch, D to D, spiral and differential the same as 'fine.' Our corrugated rolls are all run on a fixed extraction; as an illustration, first middling rolls make a 50 per cent reduction through a 10XX silk."

Another prominent mill man from the Southwest writes me that the style of corrugation principally used in that territory is the D4 Nordyke corrugation and the Allis. However, he has a preference for what is known as the Jewell corrugation, and from observation believes there is more difference in the way a man handles the breaks than there is in the particular type of corrugation. On a five-break mill he prefers the following number of corrugations to different breaks: 12, 14, 16, 20 and 24 cuts per inch.

You will understand that these are the standard number of corrugations that are used on a five-break mill, regardless of whether it is operating on hard wheat or soft winter wheat. I would prefer a three eighths inch spiral to the foot on the first and second breaks, one half inch on the third and fourth and three fourths inch on the fifth; the type of corrugation that I would like on fifth break would be the Stevens round. My reason for using this corrugation is from the fact that when you get to the fifth break or bran roll you are not grinding to make middlings, but simply to clean the bran. The old Stevens round top corrugation will throw a softer and a flakier bran than any other type I know of, and you will not have the cut up branny particles to contend with in your fifth break stock that you have with the other types of corrugations running dull to dull.

In reference to the degree of pitch, I prefer 17 degrees on 12 corrugations, 17½ on 14 corrugations, 18 on 16, and 18½ on 20. On the round corrugation used on the fifth break the degree does not make any vital difference.

In reference to extraction, I differ from a large number of millers, as I contend that the average one does not get enough extraction on the first break. You appreciate that when the wheat goes between the first break rolls both the fast roll and the slow roll are working against the bran, but after it once passes the first break, it is either the fast roll or the slow roll working against the bran. Then, again, it is almost impossible to make any large percentage of flour on the first break, using a 12 corrugation. You corrugate your rolls coarser on the head of the mill for the purpose of making middlings, and you also appreciate the fact that the coarser the corrugation the larger the middlings you make, and the larger middlings are much easier to handle on a purifier than the soft fine ones.

My idea is to get not less than 35 per cent extraction through an 18-inch wire cloth on the first break, not less than 24 per cent through a 20-wire cloth on the second break, 18 per cent through a 24-wire cloth on third break, 14 per cent through a 30-wire cloth on fourth break, and 9 per cent through a 34 or 36 on the fifth break. My idea is that if you work your first break for all that you can do, then lay off on the second, third and fourth, you will throw a nice, sharp middlings that can be handled on your purifiers, and will not make as large a percentage of break flour as you would were you to grind high on the first break and then start to grinding up on the second and on down the line. You appreciate that the finer the corrugation the more shallow it is, and it naturally will have a tendency to make more flour.

In reference to the corrugations on middlings rolls, I would consider using them only on the first sizings, and here I would use a 32 round top corrugation running at a differential of two and one half to one with one half inch spiral to the foot. This round top corrugation will not have a tendency to cut up the germ, and will flatten same, but I would not consider the use of corrugated rolls on my purified middlings. I will grant that you can get more capacity and you will use finer cloths, but I do not believe that it is possible to make as high a grade of flour on corrugated rolls on your reductions as it is possible to make on smooth rolls.

From my own observation the proper operation has more to do with the success of any corrugation than any other element. By this I do not necessarily mean the adjustment of rolls, but also seeing that the equipment ahead of the breaks is doing its full duty. There is no corrugation under the sun that will make clean middlings out of dirty wheat, neither is there a corrugation that will turn red durum or bin burnt wheat into white flour. So start the operation of your corrugations from the time the wheat arrives at your plant in the car, if you are desirous of getting the best results from them.

Purification and Bolting

By Vernon F. Doherty

Of the Red Star Milling Co., Wichita, Kansas

A paper read and discussed at the thirty-third annual convention of the Association of Operative Millers at Minneapolis on June 8.

PURIFICATION in a flour mill is carried on from the time that the wheat is unloaded until the last reduction is bolted. Everything that is done is with the idea of purification. Starting with the unloading, a good cleaning before binning will help a great deal toward keeping the wheat in good condition. Regular periods of turning are essential. Neglect of this will mean bin burn and weevil eaten berries, which will be an obstruction to purification in the mill.

Following this comes the tempering. Here it is strictly up to the miller to see that the wheat is cleaned properly. The scourers and separators must be functioning properly, to accomplish this. Neglect here may mean poor results in the purification to follow.

Next comes the breaking, and bolting of the break stock. The function of break bolting is the separation of the bran coat from the endosperm, and a classification of this stock. To show how this is carried on, we will take a break bolter and follow this stock until it is available for first middlings reduction.

First break: over 18 wire to second break; over 34 wire to purifier No. 1; over 54 wire to purifier No. 2; over 70 wire to purifier No. 3; through 12XX to flour; over 8XX to purifier No. 4; over 8XX to reel No. 1.

We find that with each classification of stock made as to size it is also classified as to ash content.

Starting with the ash content of 1.76 in the chop, the overs of the 18 wire to second break showed ash content 2.10; over the 34 wire to purifier No. 1, ash content .85; over the 54 wire to purifier No. 2, ash content .55; over the 70 wire to purifier No. 3, ash content .50.

The stock by this time has become clean, or we might say purified, to the extent that it may be bolted over the bolting cloth, and what comes through will be a flour of fair quality. On the tail of the flouring cloth is an 8XX dusting sieve. The overs of this to purifier No. 4 showed ash content .47; what comes through to reel No. 1, ash content .50. Those of the 8XX are more or less floury, due to milling conditions. They will be more floury with a high moisture content or high humidity than with a low moisture content or low humidity. Put on a reel where come and go may be made according to the amount of flour in them, it allows more flexibility in the bolting of the break flours. Properly dusted out on the reel, they may be sent to purifier. From here they should be available for fourth middlings roll. These are called dust middlings.

The overs of the 34 wire to purifier No. 1 is germ stock. From this purifier the sizings are taken. This stock is through an 18 wire and over a 34 wire, so we will clothe this purifier 34 G. G. head and 18 G. G. tail. The stock at purifier showed ash content .80; first cut to size fine ash content, .50; second cut to 1 size coarse ash content, .70; third cut to 2 size ash content, .90. The tail over to tailings purifier ash content, 3.00.

First size, classified coarse and fine for grinding are bolted together. While this stock has been purified once, further purification must take place. First, the stock will be scalped. This cloth must be fine enough to scalp off the remaining germ, yet it must be coarse enough to permit the good stock to bolt through. We will clothe this with a 38 G. G. and scalp stock off with an ash content of 2.90; under the 38 G. G. a 64 G. G., over the 64 G. G. to P5, with ash content .55.

The stock now, with ash content greatly reduced, over a 10XX to 2 middlings, with ash content .40. Through the 10XX to flour ash content, .37.

Purifier No. 5 stock is over a 64 G. G. and through a 38 G. G., so we will clothe this 64 G. G. head graduated to 38 G. G. tail. First cut on this purifier to first middlings fine, ash content .38; second cut, while good stock, is not purified sufficiently for primary stocks, so is cut to another purifier for further purification. Tail over this purifier to tailings, ash content 1.50.

Purifier No. 2 is the overs of a 54 wire. This purifier we will clothe 54 G. G. head graduated to a 34 G. G. tail. First cut from this purifier to first middlings coarse, ash content .40; second cut to first size fine, ash content .54. Tail over to tailings, ash content .90.

Purifier No. 3 is the overs of a 70 wire. This purifier we will clothe 64 G. G. head graduated to a 30 G. G. tail. First cut this purifier to first middlings medium, ash content .39. Second cut for repurification to be available for primary stock. Tail over to tailings, ash content .80.

Purifier No. 4 is the overs of an 8XX. We will clothe it 68 G. G. head graduated to 36 G. G. tail. First cut to first middlings, fine break middlings, ash .40. Second cut must be repurified, tail over to tailings, ash content .70.

While we are taking first break as an example, second and third break classified their different streams to these mentioned above, so this really represents the classification of 1-2-3 breaks to the purifiers. From this we find how the stock by gradual process is purified to the extent it is available for first middlings reduction and how it has classed these first middlings for grinding to first middlings coarse, first middlings medium, first middlings fine and first middlings, fine break middlings. By this process the stock with high ash content is classified to itself, where reclamation may be made of any remaining good stock and the rest sent to feed.

First middlings which are classified for grinding are bolted together. These middlings run in ash content, .38 to .40. From this stock a flour of .35 or .36 ash content should be bolted. To do this, further purification must take place. So we will scalp this stock with a cloth which will scalp off a small percentage of high ash stock, greatly reducing the ash content in the stock traveling over the flouring cloths. We will make this cloth a 68 G. G. and will scalp off a stock with ash content .55. The flour through a 10XX will show .35 to .36 ash content and the overs to two middlings .36 to .37 ash content.

With each following reduction the ash content of the stock becomes higher as the flour is extracted from the residue middlings. The stock becomes softer. The last reductions we will bolt on reels, using two reels, No. 1 with a short bolting cloth and the remainder G. G., using as much of the flour as is available and cutting the rest with the throughs of the G. G. to reel No. 2, which is clothed with flouring cloth the full length, overs of this to next middling reduction. A cut may be made on tail end of flouring cloth for cut to chop of next reduction if it is bolting too close before going over cloth.

Summing all this up, what I have written means very little. I have tried to show that by the use of bolters, purifiers and reels the stock may be bolted with the least possible ash content. But I have not told you how to do it. This must be worked out by yourself through observation of the mill.

Different methods of grinding will produce results different from these I have given, and will require different cloths and probably more classification; and by observing the grading, scalping and bolting one can tell whether the cloth is too coarse or too fine, and whether it has the capacity for handling the amount of stock there is on it.

Composition and Quality of Marquis Wheat

SOME interesting facts were developed in a paper delivered before the chemists' meeting on the afternoon of June 8. This dealt with the "Effect of Stage of Maturity on Composition and Quality of Marquis Wheat," and was prepared by C. E. Mangels and T. E. Stoa, of the Agricultural Experiment Station, Fargo, N. D.

Marquis wheat was harvested at different stages of maturity over a period of four years. The stages of maturity at which it was harvested were described as (1) dough, (2) hard dough, (3) glazed, (4) normal ripe, (5) dead ripe, and (6) extra late.

The conclusions from this study are as follows:

1. Marquis wheat harvested in the dough and hard dough stages averaged lower in yield and test weight per bushel than when cut at a more mature stage.

2. Protein content of wheat showed no consistent variation at different stages of maturity for different seasons. Variation in prevailing climatic conditions during maturing period was probably responsible for lack of consistency in protein content variation for different stages of maturity.

3. The protein content of patent flour from 1927 crop samples varied the same as protein in wheat. Ash decreased as wheat matured, but sugar content remained constant from dough to extra late stage.

4. Baking tests with straight grade flours from

wheat harvested at different stages of maturity showed slightly better quality for the mature wheat. Baking tests with patent flours from wheat of the 1927 crop harvested at different stages of maturity show no significant difference in loaf volume or color, but the dough and hard dough stages were lower in texture.

5. Nitrogen distribution in flour from wheat harvested at different stages of maturity showed some variation, but less than would be expected. Glutenin remained practically constant, but tended to decrease in dead ripe and extra late stages. Nitrogen soluble in 70 per cent alcohol showed consistent increase with maturity, while that soluble in 5 per cent K_2SO_4 showed consistent decrease. Nitrogen not precipitated by tungstic acid and amino nitrogen were highest in dough stage, but were at practically a constant level after the glazed stage.

6. Diastatic activity showed a tendency to decrease as wheat matured.

Oxidizing Effects of Flour Bleaching

AT the opening session of the chemists' meeting on June 8, a paper prepared by Dr. Earl B. Working, of Kansas State Agricultural College, Manhattan, was read. This dealt with "Some Oxidizing Effects of Flour Bleaching."

It was shown that the bleaching of flour had developed along such lines that now the actual destruction of color was scarcely more important than the accompanying effects generally known as "maturing." The exact chemical changes taking place were not known, but the name arose from the fact that the results are similar to those of natural aging.

Theoretically, it was declared, this maturing should be similar to the development obtained in dough by the use of oxidizing agents; but might be more severe, since the oxidizing agents used in dough were not strong enough to have a bleaching effect.

It was shown that, in a no-dough-time baking method, excellent development of the dough could be secured by the use of sodium chlorate and lactic acid. The same results could be obtained by using acid and a heavily overbleached flour.

The quality of normal flour improved for some time after milling, reached a maximum, and then began to deteriorate, the paper explained. Preliminary experiments indicated that the deterioration began sooner in bleached flour than in unbleached. Thus it seemed possible that large bakeries could prolong the period of maximum quality in their flour by buying unbleached flour and bleaching shortly before use, so that the severity of oxidation could be accurately adjusted to the needs of the flour at the time and to the fermentation schedule desired.

Spectrophotometric Methods for Baking Problems

AN interesting paper, prepared by Eva L. Stephens, Alice M. Child and Dr. C. H. Bailey, was read at the chemists' session on the morning of June 8 by Miss Stephens. This dealt with "Some Applications of Spectrophotometric Methods to Baking Problems."

According to Miss Stephens, the spectrophotometer was used in the quantitative measurement of the color of cookies produced under varying sets of conditions. Color of the molasses used in such cookies was transmitted in a measure to the cookies themselves. Increasing brownness of the cookies was effected, in general, by increasing the dosage of baking soda in the formula.

This brownness registered in terms of a diminished reflection of light from the cookies when subjected to spectrophotometric analysis. Using a standard formula, the temperature of baking was increased, and through the range of temperatures involved the cookies became progressively browner with rising temperature. Time of baking was also varied at each temperature, and again the degree of brownness increased with progressive increases in the time that the cookies were in the oven. Numerical values, resulting from color measurements with a spectrophotometer, indicated that the use of this instrument affords a convenient and accurate method for determining and recording the differences in the color of baked products which result from varying the formula or the physical conditions of baking.

Considerations of Flour Color

SOME fundamental considerations of flour color were considered by Charles G. Ferrari, in a paper read on the afternoon of June 8. It was pointed out by that speaker that the natural color of bodies was due to the absorption of light which impinged upon them. When the unabsorbed protein traversed a body, it was colored and transparent. If the unabsorbed portion was reflected, the body was opaque and colored. In colorimetry, color was specified by reference to an arbitrary standard or stimulus which was found to evoke empirically the same color sensation.

While colorimetry was undoubtedly of value in special cases as a rapid method for color comparison, he said, it was recognized that at best it is not very satisfactory. This was especially true in the determination of the gasoline color value of flour where it was difficult to secure a standard of comparison which was adequate, and where the personal equation was large.

A fundamental basis of color specification was afforded by the color analyzer or spectrophotometer, he said. By means of this instrument the transmittancy of a solution prepared by extracting flour with petroleum ether or high test gasoline was determined. For this purpose, light furnished by a quarts mercury vapor arc lamp was used. The yellow petroleum ether extracts of flour absorb light strongly of wave length 435.8 mu. The transmittancy of such extracts could be converted into a quantitative expression of flour color. This was due to the fact that the concentration of carotin was proportional to the transmittancy found. The results were expressed as parts of carotin per million of flour.

The spectrophotometer was described, and the proper preparation of the flour sample for spectrophotometric analysis was stressed. Data were given showing the change in the carotinoid pigment content of flour as affected by various bleaching agents.

The Color of Flour

A CRITICAL study of some methods used in flour colorimetry was given in a paper read at the afternoon session of the cereal chemists on June 8. This was entitled "The Color of Flour" and was written by F. Visser 't Hooft and F. J. G. de Leeuw, of the Novadel Process Corporation, Buffalo. It was read by Mr. de Leeuw.

This paper gave an outline of the factors which contribute to the color of flour and of the methods used to express this color numerically.

Special attention was given to a method published recently by D. W. Kent-Jones and C. W. Herd, of which a critical study was made. It was found that this method of flour color determination gave misleading results. The error was due to the fact that chromate solutions of different concentrations were used as standard solutions.

The error, however, could be corrected, it was explained, by the use of buffer solutions for the dilution of these standard solutions or by the use of standard solutions made with organic dyes (naphthol—yellow and orange G).

This method gave separate figures for the color of flour due to carotinoid pigments, and for that due to the presence of bran particles. The first figure corresponded to the gasoline value as given by the methods of the American Association of Cereal Chemists. The second figure was obtained by extraction of the flour with alkaline-methyl alcohol.

The authors found that this extraction was not fully completed in the time specified by D. W. Kent-Jones. To obtain a complete extraction it is necessary to work either at a higher temperature or over a much longer period. They were of the opinion that this method could be of great value to the cereal chemists if it could be freed from the imperfections which were pointed out above.

Home Consumption of Corn

By Dr. William R. Cathcart

From an Address Before the American Farm Bureau Federation at Chicago

CORN sugar, so called, because made from corn, offers an immediate and direct outlet for at least 20,000,000 bus corn annually in addition to what is now being consumed, just as soon as governmental authorities give official recognition and sanction to this sugar and place it upon the same basis as cane or beet sugar when used as an ingredient of many food products which are consumed in large quantities. Although some have estimated this outlet much higher than 20,000,000 bus, I feel that this amount is at least conservative and will be realized, as it is not based upon false hopes.

It has been stated that this country is now consuming about 12,000,000,000 lbs sugar annually, of which 58.7 per cent, or more than 7,000,000,000 lbs, are imported from foreign countries, of course, quite apart from our insular possessions.

It is my purpose to avoid as far as possible burdening you with statistics, but it is important to visualize what these extra 20,000,000 bus corn mean. This corn is capable of yielding 22 lbs pure highly refined corn sugar per bushel, or a total of 440,000,000 lbs sugar, equal to only 6.3 per cent of our foreign importations, and, therefore, cannot touch our domestic and insular production of cane and beet sugar, now protected by the tariff which secures the existence of this industry. Double this amount, treble it, increase it tenfold, and still it would be far below our foreign importation.

The production of pure corn sugar has shown a rapid increase since commercial manufacturing processes have been perfected. At present a new factory is under construction in Kansas City at an estimated cost of $1,000,000 for the purpose of manufacturing pure corn sugar. This production amounted to about 90,000,000 lbs in 1926, and probably will reach 100,000,000 for 1927, representing only about 5,000,000 bus corn.

This small amount is cited by some opposed to the freedom of use for corn sugar as a reason why this sugar and the corn products industry is of little or no importance to the corn grower. Last year the corn crop, as reported by Secretary Jardine in his recent report, was 2,647,000,000 bus. The corn products industry consumed 82,000,000, only about 3 per cent of the crop, say those who are content to look at only that phase of the situation.

Official Board of Trade figures show that of all the corn produced only about 10 per cent reaches the primary markets and determines the price of so-called "cash" corn. On this basis, the corn products industry consumed about 33 per cent of the cash corn of 1926. The corn grower was surely benefited by this demand. Increase these 82,000,000 bus by 20,000,000, and the industry's consumption of cash corn rises more than 27 per cent, and amounts to 42 per cent of the corn reaching the primary markets. Would such an increase favorably affect the price of cash corn? Is the corn grower interested in these 20,000,000 bus? These are questions for you to consider.

The food value and unexcelled physiological properties of corn sugar (dextrose, glucose) have been recognized by the leading authorities of the scientific world. The Journal of the American Medical Association, in discussing this subject editorially, states: "Glucose is thus par excellence the psychologic sugar. With the use of glucose as a food preservative or dietary ingredient, the physician cannot find any fault."

Naturally, you will ask why in the face of such testimony is not the manufacture and consumption of corn sugar encouraged instead of hindered by governmental regulations? Why do we not consume within our own borders the so-called surplus corn? Why do we not prepare to face with confidence the combination now being formed by the foreign sugar interests? These, again, are questions worthy of your thought.

The pure food and drugs act is administered through a system of definitions and standards. These definitions and standards are purely arbitrary. It is admitted they have not been authorized by Congress. Those concerned with the regulations state that definitions and standards have nothing to do with quality, but are based solely upon custom, and that standards and definitions must follow, not lead, custom.

The Baking Quality of Dry Skim Milk

ONE of the papers delivered at the chemists' meeting on June 8 dealt with the "Effect of Variation in the Method of Manufacture on the Baking Quality of Dry Skim Milk." This paper was prepared by Emily Grewe and George E. Holm, research laboratories, Bureau of Dairy Industry, United States Department of Agriculture.

Six samples of dry milk were prepared for studying the effects of forewarming on baking quality. Previous to converting to a powder, the different samples of milk were held for 30 minutes at the following temperatures: 50, 63, 73, 83, 93 and 100 degrees centigrade.

One hard spring wheat flour, one hard winter and a soft winter were used in this investigation. The three differed in their reaction to the use of dry skim milk. The greatest improvement was noted with the soft winter and the least with the hard winter. The range of fermentation time in which doughs produce good bread is increased by the use of dry skim milk. Loaf volume, period of fermentation tolerance, grain, texture, and break were used as criteria in scoring the bread.

In all these properties, and with all three flours, the poorest results were obtained with those milks which had had the forewarming treatment of 50 and 60 degrees, of which the latter was better than the former. Only slight differences were obtained in the bread in which was used milk that had treatments of 73, 83, 93 and 100 degrees, previous to changing to the dry state, and these scored much higher than those containing milks subjected to the lower heat treatments.

Of Great Importance to Poultry

BOSTON, MASS.—Carl J. B. Currie, sales manager for the Park & Pollard Co., poultry feed distributors in this city, and known as "Oatson Corn" in the monthly publication of that organization, is conducting a contest in which three gold prizes of $10 for first and $5 each for second and third are offered for the best answers to the following question, "Which cum First, thuh hen or thuh Egg?" The judges are Pop Korn, Ez Oatcake and Zeke Hardapple, also writers for the publication known as "Scratch."

As a supplement to regular feeds in the South, 48 per cent protein peanut meal is now being sold, in finely ground form, with about 9 per cent crude fiber and 7 per cent fat. In some districts whole pressed peanut feed is being used. This contains 34 per cent protein and more than 20 per cent crude fiber.

EUROPEAN · DEPARTMENT

C. F. G. RAIKES, EUROPEAN MANAGER

59 Mark Lane, London, E. C. 3, England

Correspondents in Amsterdam, Belfast, Budapest, Copenhagen, Glasgow, Hamburg, Liverpool and Oslo
Cable and Telegraphic Address: "Millefiori"

GROUP URGES WORLD FREEDOM OF TRADE

Committee of League of Nations Hopes Eventually to Establish Freedom of Commerce Throughout the World

LONDON, ENG.—On May 14, at noon, in the city of Geneva, a conference began of the consultative committee of the Economic Organization of the League of Nations. This committee was set up last year by the Council of the League to follow up recommendations of the Economic conference. The committee consists of 60 members, representing 30 countries. The president is a Belgian, M. Theunis, who also acted as president of the World Economic Conference which was held a year ago. The British Empire is represented by seven members, four hailing from Great Britain, one from Canada, one from Australia and one from India.

In a memorandum drawn up before the present conference began its meetings, it was stated that its main work would be to consider questions of commercial policy. Freedom of commerce is the aim, although it realizes it is going to take many years before this is accomplished. According to recent investigations it has been found that tariffs actually in force at the present time are higher than those which ruled a year ago, but a number of demands for increased tariffs, often powerfully sponsored, have been rejected, which is regarded as a hopeful sign.

In the discussion at one of the sessions M. Loucheur, who is known as the "father" of the Economic conference, made a very interesting speech, in which he urged the importance of international cartels as the panacea for the industrial troubles of Europe. He was not very enthusiastic about tariff reductions. In his opinion the throwing down of tariff walls would only transfer unemployment from one country to another. There was little hope of reducing the volume of unemployment in Europe, as the United States had captured many European markets. What was needed was to increase the purchasing power of the working classes in Europe, but beyond recommending industrial agreements he could offer no practical suggestion to attain this end.

One of the British representatives made certain proposals which, however, met with considerable opposition. One was that the upward movement of tariffs should cease, so as to give a favorable atmosphere for discussing reductions. He also proposed a declaration to the effect that, while the proposal to reduce tariffs in selected groups of commodities might seem the most practical first step in the demolition of tariff walls, the idea of general percentage reductions had not been abandoned. Some considered he was going too fast and too far in his proposals, and they apparently were not accepted. The idea of a tariff holiday—that is to say, a period in which no further increases in tariffs would be made—is strongly held by many who are considering this problem, and it is understood that at next year's conference the "demobilization of tariffs" will be the chief feature.

JUGOSLAVIAN MILLERS' DEMANDS

HAMBURG, GERMANY.—In connection with the revision of commercial treaties with various countries, the Jugoslavian millers demanded a revision of the treaties with Germany, Austria, Czechoslovakia, Italy and Greece, with the object of obtaining the unrestricted importation of Jugoslavian flour into these countries. They also asked for a reduction of freight rates for export and an absolute prohibition of flour import; also the withdrawal of the tax on the turnover, reduction of the industrial tax and of the import duty on foreign grain.

The trade does not expect that all these claims will be granted, as a revision of commercial treaties is only possible when the interests of the countries with which treaties are closed are also taken into consideration.

DANZIG'S LARGER GRAIN IMPORTS

DANZIG, POLAND.—Grain imports have steadily increased of late in Danzig. While up till now only small shipments from Baltic ports have arrived, there are a few large ones en route from America. About 150,000 tons are expected in the near future.

BARLEY MILLERS' PROTEST

GLASGOW, SCOTLAND.—In Scotland, as in England, barley millers are loud in protest against the effects upon their trade of the regulation of the ministry of health that precludes the use of a small percentage of sulphur in the preparation of pearl barley.

It has been the custom for millers to use an almost infinitesimal proportion of sulphur in the process of manufacture. The millers contend that it is essential thereto, and that the quantity is so slight as to be almost imperceptible to the analyst. The custom is also universal in Holland and Germany.

DEATH OF IRISH BAKER

BELFAST, IRELAND.—The death occurred recently of Daniel O'Leary, a master baker and flour merchant of Dunmanway, County Cork, Ireland. He was widely known, and greatly esteemed by the trade in general.

London Flour Arrivals

Arrivals of flour in London, by weeks, in sacks of 280 lbs, showing countries of origin:

From—	Week ending May 18 1928	Week ending May 11 1928	Week ending May 20 1927
United States—			
Atlantic	3,125	4,904	2,842
Canada—Atlantic	11,500	5,845	17,520
Australia	12,200	2,400	23,998
Argentina	5,440	1,026	13,772
Continent	125	150	...
Coastwise	4,080	1,060	1,840

A Commentary on the Present Shortage of Oatmeal

GLASGOW, SCOTLAND.

SCOTTISH oatmeal has advanced since the beginning of the year by as much as 22s per sack of 280 lbs. On Dec. 28, 1927, the quotation for north country (Banffshire) oatmeal was 43s; recently the same class of meal brought 63@65s.

Considering the adverse conditions of the growing season last year, this appreciation in values might have been expected. It is seldom that so much of the Scottish crop falls into the category of feeding oats and so little qualifies for milling purposes. Shrewd farmers doubtless felt that if they had good oats and could hold onto them, prices would pay for the delayed marketing. But it is certain that those in such a position were not free to follow their own judgment. In other words, they were short of cash and had to market what was available.

A Glasgow merchant reports that nowhere in Scotland are there any appreciable supplies of milling oats. Aberdeenshire, the largest growing county, sent heavy supplies into England several months ago, and is now cleaned out. The whole of the Moray Firth coast is in the same position. Forfarshire and East Lothian have little to offer.

This tightening of the supply position has been evident ever since Jan. 1, and prices would certainly have reached their present high level much earlier but for Ireland's contribution to this market. Ireland is now offering on a very restricted scale, and there is not any chance of Irish consignments coming in a volume that will ease the position. The reverse is likely to be the case.

Canada, as a market factor, was negligible at the beginning of the year. Her prices were out of alignment, and had the Scottish values not risen the Canadian shippers would not have gained a foothold unless they were able to cut their prices steeply. At today's relative values it would seem that there is a promising opening for Canada, but Glasgow merchants state that recently they have had no direct offers of oatmeal, from which fact they infer that Canada also is short.

It is not likely, it is pointed out, that the high price of oatmeal will ease before the new crop comes into the market in September. It is possible that when farmers have advanced all their field work for the season there will be more threshing, but merchants do not believe that the supply remaining to be threshed is of any account. It will be interesting to see what effect dearness has on the Scottish oatmeal position. For some years oatmeal, despite its relative cheapness, has been neglected by consumers. The national dish of Scotland has disappeared from many breakfast tables. Human nature has so many strange whims that traders are watching to see if dearness wins back the consumer to a dish that had no attraction when it was cheap. It happens that the lower summer milk price began May 1. Milk is the Scottish accompaniment of porridge, and the high price of the meal thus is offset to some extent.

There is a further aspect of interest in the oatmeal position. Germany has invaded the British market with both oats and oatmeal, chiefly the latter. This has been taken notice of by John Inglis & Sons, Ltd., the Midlothian Oatmeal Mills, Leith, which has published a letter in the Scottish Farmer directing attention to the fact that "oatmeal, supposed to be Scottish, is being freely offered at cheap prices. This oatmeal is actually a mixture of Scottish and cheap German oatmeal, or consists entirely of the latter." That firm adds that, in view of the prevalence of adulteration, it assures its buyers of oatmeal that it stands by the century-old guaranty that "All our oatmeal products are warranted genuine, and are not mixed with any imported meal or with foreign oats of any description whatever." It warns farmers that mixing does incalculable harm alike to the Scottish milling trade and to the Scottish grower of oats, and it suggests that buyers could protect themselves by asking the millers or merchants supplying them for a signed guaranty of genuineness.

POLAND ALLOWS WHEAT IMPORTS, BARS FLOUR

LONDON, ENG.—The Polish council of ministers has issued a regulation according to which the prohibition on the importation of wheat flour will be extended to June 30, provision being made for its lifting in special cases. The regulation came into force on May 5. The prohibition on the importation of wheat, on the other hand, has been withdrawn.

A conference will take place very shortly at the Warsaw ministry of the interior with the object of drawing up a uniform contract for grain and feedingstuffs to be used on the Polish grain exchanges. This unification is considered of great importance, as it will facilitate negotiations between Germany and Poland with the object of drawing up an official grain contract for the trade between these countries, including official arbitration. Germany has proposed Berlin arbitration for sales of Polish grain to Germany (including transit business), and Posen arbitration for sales of German grain to Poland. The Polish exchanges have agreed, in principle, with such an arrangement, but in addition it is considered highly advisable to have a special treaty between the two countries with a view to securing the execution of arbitration awards given in both countries.

With the object of maintaining bread and flour prices, and preventing further advances, the Polish government has continued intervention measures on the Warsaw and Lodz grain markets. In connection herewith, credits have been opened recently in favor of the municipal sales offices and co-operative societies for the purchase of 60,000 tons foreign grain. At the same time certain facilities will be granted, in the shape of lower railway freight, for the import of this grain. Finally, grain requirements for the Polish army will entirely be covered abroad, so as to release the domestic grain market from army purchases before the new crop is harvested.

According to official statistics, Poland imported in March, 1928, about 2,100 tons wheat (as against 8,200 from January till March, 1927, inclusive), 1,400 tons rye (2,800 tons in 1927), and 69 tons wheat flour, against 2,000 from January till March, 1927, inclusive. Exports totaled 326 tons wheat and 700 tons rye. There were no exports of wheat flour in March of this year, while during the first three months of 1927 only 30 tons were exported.

FREE STATE FLOUR IMPORTS

DUBLIN, IRELAND.—In the Irish Free State parliament Mr. McGilligan, minister for industry, in answer to a question regarding the quantity of wheat flour imported during the first three months of each year from 1924 to 1928, gave the following figures: 1924, 43,067 tons; 1925, 40,924; 1926, 35,744; 1927, 39,347; 1928, 46,596. The figures are so even in quantity that it proves that Irish bakers are only importing the strong flour which the Irish millers are not making, and that they are buying as much of the softer home made flour as they can use, consistent with the quality of bread which they turn out and which the public demands. The biggest increase was during the three months of 1928, but this was accounted for by the fact that bakers were expecting a duty to be put on flour, and they bought over and above their requirements with a view to having a stock on hand.

CENTRAL AND SOUTHERN STATES

WILLIAM H. WIGGIN, MANAGER
543-545 Ohio Building, Toledo, Ohio
Correspondents at Atlanta, Evansville, Indianapolis, Nashville and Norfolk
Cable Address: "Palmking"

TOLEDO

Flour business is very quiet. Operation of soft wheat mills in this section has been tending steadily downward until it has now reached the low point of the crop. Half capacity is about the best that can be expected, and probably the majority of the mills are not doing so well as that, with no account taken of the many small ones never heard from, and some of which may be closed altogether.

Flour Buying Light.—The decline in wheat and flour prices has not stimulated sales. For a time there was some stimulus to the movement of wheat, but now that has fallen off. Apparently, buyers are taking only what flour they must have, and as they must have it. Considerable business has probably gone to western mills, which have been offering soft wheat flours, or low protein hard wheat flours, or blends, at lower prices than could be met in competition. It is impossible to estimate the amount of such business, but undoubtedly it is a factor in the situation.

Many Substitutes.—There have probably been all kinds of substitutes offered, varying from straight low protein hard wheat flours, both hard winter and springs, to blends of soft and semisoft wheat flours by themselves and with the hard wheat flours. Experience so far seems to indicate that, when it comes to blending other wheats or flours, better results are obtained by having them of the same kind or character, thereby retaining the essential qualities of soft wheat flour.

The phenomenon of blended flours, or substitutes, may continue through the coming crop. Millers undoubtedly will try to operate their plants, if not on one kind of flour, then on some other. This means that it will be more than ever important for the flour buyer to make sure that he has a reliable mill connection, one that can be depended upon to give him a satisfactory flour for his particular requirements, and let him know just what he is getting. There will be a chance for skill and intelligence in milling to make itself known, and it should command a premium. It remains to be seen whether the buyers will show any such discrimination. Price seems to mean so much to them.

A decline of 3c in wheat on June 7 because of rains and more favorable conditions for the hard wheat crops showed how sensitive the market is to weather influences, although the absence of export sales also was a factor. Such being the case, it is possible that buyers will hold off pending the outcome of the crops in hard wheat territory here and in Canada, where the acreage is sufficient to produce big returns, to say nothing of the carry-over.

Soft winter wheat standard patent flour was quoted, June 8, at $7.50@8 bbl and local springs $8, in 98's, f.o.b., Toledo or mill. This represents a decline of $2@2.50 from the nominal high price of April, when no flour could be sold on the replacement value of the wheat.

CENTRAL STATES MILLS

Output by mills in Ohio, Indiana and Michigan, including those at Toledo, as reported to The Northwestern Miller:

	Weekly capacity bbls	Flour output bbls	Pct. of activity
June 3-9	125,280	76,038	52½
Previous week ..	120,300	63,010	52½
Year ago	43,500	21,515	49
Two years ago...	87,960	37,779	43
Three years ago.	90,960	32,659	35½

DEATH OF JOHN WICKENHISER

John Wickenhiser, of John Wickenhiser & Co., grain dealers, Toledo, died at his home, June 5, aged 72. The cause of death was heart disease, and he had been ill only since the previous Sunday. Mr. Wickenhiser was born near Weston, Ohio. He came to Toledo 38 years ago, and helped form the Ainsworth & Wickenhiser Shoe Co. He entered the grain business 27 years ago in the firm of Wickenhiser & Travis. He was a member of the Chicago Board of Trade, past president of the Ohio Grain Dealers' Association, director and past president of the Toledo Produce Exchange, vice president of the Ohio Grain Dealers' Insurance Co., director of the Ohio Savings Bank & Trust Co., and a member of the Scottish Rite Masonic orders of Toledo. He is survived by his wife, a son, J. Frederick, associated with him in the business, three brothers and a sister.

NOTES

The mill at Rustford, Mich., operated by Elmo Quigley, burned recently. Insurance to the amount of $11,500 was paid.

H. Wallace Applegate, in charge of the grain department of the Mennel Milling Co., was in Chicago several days last week.

The Ohio Grain Dealers' Association will hold a meeting at the Argonne Hotel, Lima, June 19-20, and the Indiana Grain Dealers' Association at the Hotel Gary, Gary, June 28-29.

The plant of the Thunder Bay Milling Co., Alpena, Mich., burned recently. The cause of the fire was attributed to the fact that smoking had been allowed on the premises. The mill was insured for $17,500.

Southworth & Co., grain, say that, according to an old adage, you can't bull wheat in June. It is June, not May, drouth that is liable to do damage to the spring wheat crop, and frequently the latter days of June bring high temperatures which result in sharp upturns in wheat prices.

The Smith-Sayles Grain Co. has moved its headquarters from Columbus, Ohio, to Toledo, and now has an office in the Second National Bank Building. In connection with its grain business it will represent the Sheffield Elevator Co., Minneapolis. Philip Sayles, head of this company, is serving his second term as president of the Ohio Grain Dealers' Association.

NASHVILLE

Flour trade in the Southeast was light last week. Current sales were the smallest of the year, and shipments fell below any previous week of 1928. Buying was principally for prompt and immediate shipment. Mills have been getting business on books cleared up.

Business has been fairly satisfactory to mills, and some have been well pleased with the record of the past month, having had a steady stream of orders. While volume has fallen behind last year, this has not been surprising. There is little prospect of immediate change in market conditions, and as stocks are low, a moderate business is expected to continue for the remainder of the month.

Flour prices did not show important change last week, mills not being willing to follow the movements of wheat. The setback in feed prices has been a supporting factor. Quotations, June 9: best soft winter wheat short patent, 98-lb cottons, f.o.b., Ohio River stations, $10 @10.50 bbl; standard patent, $9@9.50; straights, $8.75@9; first clears, $7.50@8. Current sales are extremely light.

There has been some readjustment of prices of Minnesota and western flours. Business last week was moderate. Quotations, June 9: spring wheat first patent, 98-lb cottons, delivered at Nashville, $8.50@9 bbl; standard patent, 25@50c less; hard winter wheat short patent, $8 @8.50; straights, 50@60c less.

Output of flour by southeastern mills, as reported to The Northwestern Miller:

	Weekly capacity bbls	Flour output bbls	Pct. of activity
June 3-9	126,120	60,097	47.6
Previous week ..	144,720	73,043	50.4
Year ago	134,520	81,333	52.1
Two years ago...	164,820	77,591	47
Three years ago.	129,720	58,434	45

* *

Vernon S. Tupper, general manager of the Nashville Roller Mills, has been elected a member of the board of trustees of Fisk University. JOHN LEIPER.

EVANSVILLE

New flour business is reported light. However, there is plenty of shipping, and mills are active taking care of previous orders. Quotations, June 9, f.o.b., Evansville, 98-lb sacks, carload lots: soft winter wheat best patent $9.75 bbl, first patent $9.35, straights $8.85; Kansas hard, $8.50; first clears, in jutes, $7.50, second clears $7.

NOTES

Malcolm Fuhrer, of the Fuhrer-Ford Milling Co., Mount Vernon, Ind., has returned from a business trip through the South.

Leslie Igleheart, son of J. G. Igleheart, of Igleheart Bros., Inc., is in Pittsburgh, where he has accepted a position for the summer.

John L. Igleheart, president of Igleheart Bros., Inc., has been named one of a committee of three to supervise construction of the new $20,000 home for the president of Evansville College, building of which is to go forward at once.

W. H. Bradley, manager of the W. A. Browning Milling Co., corn miller, reports that work of installing new machinery to take care of the increased trade has been completed, and the plant now is being operated 24 hours a day. He says he is behind on his orders, and that business conditions look encouraging.

INDIANAPOLIS

Business in flour continues very light. There have been some scattered attempts to stimulate buying via the old method of price concessions, but such as are made do not appear to have the desired effect. Millers are watching the wheat situation closely, and are governing their purchases accordingly. Low grades seem to be in better demand than the higher ones. Shipping instructions are fairly active.

Little activity was reported in the soft wheat flour market during the week, with prices said to be the big drawback. Consumers plainly are operating on a current basis, and stocks are reported low. Shipping directions are fair.

Local millers believe there is still some fair buying to be done in hard wheat flour from the old crop, and are manufacturing in anticipation of this probable demand. Buyers appear to be awaiting price developments. Shipping instructions remain fair.

Some little business is being done with Latin America, but the remainder of the export trade is nil.

Quotations, Indianapolis, 140-lb jutes, June 9: soft winter short patent $8.75@9.25 bbl, straight $7.50@8, first clear $6.50@7; hard winter short patent $7.50 @8, straight $6.75@7.25, first clear $5.75 @6.25; spring first patent $7.50@8, standard patent $7.25@7.75, first clear $6.25@6.75.

NOTES

The Ainsworth-Boone seed corn warehouse at Kentland, Ind., recently was burned.

Sale of the Elevator Realty Co., a subsidiary of the J. F. Wild & Co. state bank in Indianapolis, which closed its doors last summer, has been approved and the concern's property likely will be sold in a few days. U. S. Lesh, receiver for the company, has received a bid of $40,000 from a Tennessee organization, the name of which was not made public. The grain elevator at Beech Grove, Ind., comprises the company's assets.

T. DELANEY.

NORFOLK

Flour quotations are nominal, since little business is moving. Millers are expressing a desire to fill out their contracts, in preparation for the new crop. Quotations, June 8: northwestern spring patents $8.80@9.10 bbl, second patents $8.40@8.50; Kansas top patents $8.75@ 8.95, second patents $8.40@8.90; winter patents $8.65@8.90, second patents $8.30 @8.50; low protein flours, $7.40@7.70.

JOSEPH A. LESLIE, JR.

WILL TRY TO REDUCE U. S. GRAIN EXPORTS FROM CANADA

WASHINGTON, D. C.—Senator David I. Walsh, of Massachusetts, announces that he will endeavor to bring about at the next session of Congress legislation dealing with conditions which he says are causing Canadian ports to be preferred to those of the United States for shipments, notably of grain, from and to this country.

The senator points out that in 1906 18,000,000 bus grain were exported through Boston, while in 1926 only 4,000,000 passed through that port. Export tonnage through Portland, Maine, fell from 625,000 tons in 1923 to 266,000 in 1926. Grain exports through Montreal totaled 122,000,000 bus during the 12 months ending March 31, 1927, and 40 per cent of this was American grain, says the senator.

WILL REVIEW CORN BORER FIGHT

WASHINGTON, D. C.—It is anounced by its proponents that the fight for a $7,000,000 special appropriation to fight the European corn borer will be renewed at the next session of Congress. The proposal failed at the recent session. A special appropriation of $10,000,000 was made for the purpose by the preceding Congress, and it is stated that $3,000,000 of it remains.

There is considerable doubt as to how far large expenditure of money will be effective in fighting the insect pest that has aroused much apprehension throughout the corn belt.

TEXAS WHEAT IN DEMAND

DALLAS, TEXAS.—Grain men say that the grade of wheat in Texas and southern Oklahoma this year is up to standard, and that the yield will be greater than at first expected. Brokers report foreign demand for new wheat already heavy. J. C. Crouch, wheat authority in this section, says that the Texas yield will be 25,000,000 bus, about 8,000,000 above last year's.

According to the United States Department of Labor, the average rate of wages of bakers in the United States increased from 92.5c per hour in May, 1926, to 95.7c in 1927.

NO MORE BLACK BANANAS; THEY'LL BE FLOUR INSTEAD

THE Chicago Daily News recently carried a report that a process for the conservation of fruit which spoils has been approved by the German ministry of agriculture, and already is being utilized in a factory at Frankfort-on-the-Oder.

The report says that after years of research Carl Hessel, a German chemical engineer, has succeeded in reducing fresh fruits of most varieties to a dry flour in which it is claimed that all the vitamins and food properties of fresh fruit are preserved.

The flour is pressed into molds which can be immersed in water before consumption, and possesses the taste and properties of the fresh product. The molds, when well packed, will last for many years.

For commercial use the fruit molds will be prepared in sealed cartons with waxed paper, but the product also can be produced in cake form or in bars. As a flour, it can be used for almost all purposes.

ST·LOUIS·DISTRICT

WAYNE G. MARTIN, MANAGER

517 Merchants Exchange, St. Louis, Mo.

Correspondents at Memphis and New Orleans

Cable Address: "Palmking"

ST. LOUIS

Mills reported very little new business last week, although some said that a slight improvement was noticeable toward the close. Easier prices, which occurred during the middle of the week, were no inducement for extensive booking. What business was done was scattered and generally for immediate shipment. Shipping specifications on old bookings were fair, and this is what mills for the most part are working on.

Soft Wheat Flour.—No change has occurred in the soft wheat flour situation. Premiums on what wheat is available are causing prices to remain high, and buyers are reluctant to make bookings except as forced to by exhausted stocks. Shipping instructions are fair on old bookings, and the new crop year will find very little business carried over from the old one.

Hard Wheat Flour.—Seasonal dullness prevailed in the hard wheat flour market last week. Buyers are not interested even in price concessions, and it appears almost impossible for mills to force business. The trade is working on old bookings, and shipping specifications have been fair. The close of the crop year will find the majority of mills with their seasons' bookings well cleared up.

Exports.—The export trade continues almost stagnant. Importers are holding off as much as possible; consequently, the only business is widely scattered and for small lots to meet immediate requirements.

Flour Prices.—Quotations, 140-lb jutes, St. Louis, June 9: soft winter short patent $8.25@9 bbl, straight $7.25@7.75, first clear $6@6.50; hard winter short patent $7.25@7.75, straight $6.50@7, first clear $5.50@6; spring first patent $7.25@8, standard patent $7@7.50, first clear $6.25@6.75.

FLOUR OUTPUT

Output of St. Louis mills, with a weekly capacity of 60,400 bbls, as reported to The Northwestern Miller:

	Output bbls	Pct. of activity
June 3-9	20,100	33
Previous week	29,500	48
Year ago	25,800	42
Two years ago	17,300	27

Output of outside mills, with a weekly capacity of 87,000 bbls, the product of which is sold from St. Louis:

	Output bbls	Pct. of activity
June 3-9	44,400	51
Previous week	42,800	49
Year ago	49,300	57
Two years ago	42,700	44

NOTES

R. Ward Magill, sales manager for the Kansas Milling Co., Wichita, Kansas, visited this office last week.

Charles A. Ward, Illinois representative of the Eagle Roller Mill Co., New Ulm, Minn., was here last week.

Charles Elsroad, of the Midland Flour Milling Co., Kansas City, stopped in St. Louis last week en route to the mill's headquarters.

A. H. Allen, manager of the Crown Mills, Portland, Oregon, was in St. Louis on business last week, while en route to the East and the South.

A. E. Whiteside, Carbondale, Ill., southern Illinois representative of the Hubbard Milling Co., Mankato, Minn., recently was in St. Louis.

Edward T. Hall, vice president in charge of advertising for the Ralston Purina Co., has been elected president of the St. Louis chapter of the New England Society.

Approximately 50 wholesale and retail grocers left St. Louis on May 9 for New Orleans to attend the annual convention of the National Wholesale Grocers' Association and the National Retail Grocers' Association.

The annual outing and golf tournament of the St. Louis Millers' Club, which was to have been held at the St. Clair Country Club, Belleville, Ill., June 5, was postponed, on account of inclement weather, to June 19.

The crop improvement committee of the Southern Illinois Millers' Association has been invited to attend the next meeting of district No. 5 of the Association of Operative Millers, which will be held at the Statler Hotel, St. Louis, Aug. 18.

NEW ORLEANS

A few new crop flour offerings from Oklahoma mills featured an otherwise rather dull week. Some small sales of new wheat flour were made for the last half of June and July shipment.

The flour trade in general was quiet, both in the city and country, bakers and other flour buyers being reluctant to enter the market except to restore dwindling stocks. The export trade was dull, and although the United Kingdom, and some of the continental buyers, apparently were in a mood to take hold, cables disclosed such a wide variance of price ideas that it was virtually impossible to close deals. Canadian mills are still underselling those in the Southwest, and local exporters are not optimistic of a change for the better in this respect in the near future. European flour exports last week dropped to 1,530 bags, of which Hamburg took 1,455 and Marseille 75. Latin American buyers were not very active. Flour prices, June 7:

	Spring	Winter Hard	Winter Soft
Short patent	$8.35	$7.45	$9.20
95 per cent	8.00	7.15	8.80
100 per cent	7.75	6.90	8.30
Cut	7.55	6.70	8.00
First clear	....	6.35	6.65
Second clear	....	5.65	5.80

Semolina, 4½c lb.

A total of 28,062 200-lb bags flour was sent to the tropics during the seven days ended June 7, according to figures supplied by four of the leading steamship lines that serve Latin America, as follows:

Cuyamel Fruit Co: to Puerto Cortez, 890 bags; Bluefields, 720.

Standard Fruit & Steamship Co: Havana, 250; Vera Cruz, 1,000; Panama City, 2,680.

Munson Line: Havana, 200; Matanzas, 850; Caibarien, 200; Nuevitas, 200.

United Fruit Co: Havana, 2,537; Santiago, 850; Puerto Barrios, 1,150; Colon, 915; Panama City, 600; Buenaventura, 600; Guayaquil, 1,820; Puerto Limon, 2,275; Bocas del Toro, 200; Belize, 125.

Flour movement out of New Orleans, in 200-lb bags, during the seven days ended June 7:

Destination—		Destination—	
Arecibo	200	Manzanillo	331
Belize	315	Marseille	75
Bluefields	891	Matanzas	1,258
Bocas del Toro	200	Mayaguez	100
Buenaventura	908	Nuevitas	450
Caibarien	200	Panama City	3,430
Carmen	110	Pointe-a-Pitre	1,700
Ceiba	305	Puerto Barrios	1,150
Cienfuegos	306	Puerto Cortez	890
Colon	1,400	Puerto Limon	2,275
Fort de France	1,100	San Jose	1,480
Frontera	100	San Juan	800
Guayaquil	2,508	Santiago	1,367
Hamburg	1,455	Tampico	240
Havana	4,918	Tela	453
Las Palmas	2,429	Vera Cruz	1,000

In addition to the above, there was a total of 10,901 bus wheat sent through this port during the week to Progreso and 51,429 bus rye to Rotterdam.

Trading locally was very quiet in the rice market last week. Fancy blue rose was quoted at 4 1-16c lb, here, but buyers did not seem interested, even when one holder offered to sell at ½c lb under mill quotations. Export trade, however, was very lively.

Receipts—	Rough sacks	Clean pockets
Season to June 7	508,810	1,269,638
Same period, 1927	687,000	1,200,496
Sales—		
Season to June 7	39,321	307,323
Same period, 1927	76,602	463,073

NOTES

A good attendance was recorded at the regular monthly meeting of the New Orleans Flour Club. Important matters pertaining to the problems of the trade were discussed.

The Louisiana insurance commission's hearing of an application by the Louisiana rating and fire prevention bureau for an increase in rates on cottonseed oil mills has been postponed from June 5 to July 11. The bureau's recent application for an increase of 13½ per cent in rates has been refused.

R. A. SULLIVAN.

MEMPHIS

Filling in orders constitute the bulk of business in flour, with occasional shipping instructions from consumers or distributors whose stocks are getting low. It is felt here that the new season will find supplies very light in the hands of the trade, little interest being manifested in the new crop. Hard winter people and blenders are anticipating a good business, because of the better promise of the crop in the Southwest.

Flour quotations, basis 98's, f.o.b., car lots, June 9: spring wheat short patent $8.75@8.90 bbl, standard patent $8.45@9; hard winter short patent $8.40@8.90, standard patent $7.60@8.15; soft winter short patent $9.25@10, standard patent $8.25@8.50; western soft patent $8@8.25, semihard patent $7.30, blended 95 per cent patent $7.85@8.10.

NOTES

E. W. Morrison, vice president of the Red Star Milling Co., Wichita, Kansas, visited the local branch last week.

H. L. Douty, Memphis manager of the Pillsbury Flour Mills Co., Minneapolis, and his bride, have returned from their honeymoon spent in the East.

Charles B. Stout, president of the Dixie-Portland Flour Co., is chairman of a committee from the Chamber of Commerce to prepare the program for a mid-South celebration of the passage of flood relief legislation by Congress.

GEORGE WILLIAMSON.

WICHITA

Flour business was quiet last week. Mills busied themselves with rush orders where bakers were short on supplies, and with the filling of contracts. Specifications were satisfactory. Mills operated at approximately 65 per cent capacity. Export business was at a standstill. Quotations, June 8, basis 98-lb cottons, Kansas City: hard wheat short patent, $8.20@8.30 bbl; straight, $7.80; clears, $6.70.

NOTES

D. A. McVicar has been appointed manager of the Amarillo branch of the Red Star Milling Co.

Fred W. Hipple, Texas sales representative of the Consolidated Flour Mills Co., visited the Wichita office of the company last week.

H. D. Garst, Huntington, W. Va., and H. B. Scanland, Bluefield, W. Va., representatives of the Wichita Flour Mills Co. in West Virginia, are visiting the offices of the company here.

J. J. Mann, former secretary of the Southern Kansas Millers' League, has begun his duties as secretary of the Wichita Board of Trade. A meeting of the league has been called for June 19, when a successor to Mr. Mann will be chosen.

John Viscara, representative of the Red Star Milling Co. in the West Indies and Latin America, is spending a month in the offices of the company here. He is taking the place of Glen Fretzs, export manager of the company, during the latter's vacation.

The Consolidated Flour Mills Co. announces the purchase of country elevators at Charlet, Pawnee Rock and Garden Plain, Kansas. These are being remodeled and equipped with track scales and automatic dumps, in anticipation of an active wheat business this season.

The first samples of new wheat to be tested by the state chemists at the Board of Trade were received last week. One from Walters, Okla., tested 14.35 per cent protein. Another from southern Oklahoma tested 10.95 per cent protein before being dried, and 11.15 per cent after drying.

Grady Coleman has been appointed manager of the Fort Smith, Ark., branch of the Red Star Milling Co. C. L. Drace, former manager there, has moved to Aurora, Mo., where he will become secretary of a building and loan association. Mr. Drace formerly lived in Aurora, where he was engaged in milling.

HUTCHINSON

Flour sales continue light with central Kansas mills, bookings being confined to small lots for spot shipment. New crop inquiry lacks a serious tone, and little flour has been sold for delivery beyond Aug. 1. Export buyers are so far out of line that inquiry has fallen off. Directions on old contracts are fair to good. Quotations, basis cotton 98's, Kansas City: short patent, $8.30 bbl; straight, $7.80@7.90; first clear, $5.70@6.20.

NOTES

A. L. Jacobson, manager of the Arnold Milling Co., Sterling, Kansas, spent last week calling on connections in Oklahoma.

Edward Sowden, of the New Era Milling Co., Arkansas City, Kansas, returned from an extended business trip which took him to the Pacific Coast.

P. Kastner, head miller for the Moundridge (Kansas) Milling Co. for several years, died in a hospital at Newton. Funeral services were held June 8.

"I've never seen finer conditions for this season," commented T. L. Welsh, of the Abilene (Kansas) Flour Mills Co., on returning from a trip through the Southwest.

Andrew Smith, manager of the Kansas Mill & Elevator Co., and Ralph C. Sowden, president of the New Era Milling Co., Arkansas City, attended a recent group meeting of millers at Ponca City, Okla.

T. E. Higley, assistant sales manager for the William Kelly Milling Co., called on the trade in southwestern Kansas and the Oklahoma and Texas panhandle recently. He reported excellent wheat prospects throughout that territory.

Wheat in this section suffered some loss due to heavy hailstorms late in the week. Carl C. Krehbiel, of the Moundridge (Kansas) Milling Co., reports a considerable stretch of wheat in his vicinity beaten down the night of June 7.

Two millers, C. C. Kelly, vice president of the William Kelly Milling Co., and Bruce F. Young, secretary-treasurer of the Consolidated Flour Mills Co., and president of the newly organized Western Terminal Co., were elected directors of the Board of Trade at the recent annual election. Frank Summers, of the Security Elevator Co., was elected president, and J. Brada, of the Southwestern Grain Co., vice president.

SALINA

The nearness of harvest was reflected in the slow sales of flour last week. Little new business was reported by Salina millers. Prices remain unchanged. Quotations, June 7, basis Kansas City, cotton 98's: short patent, $8.10@8.50 bbl; 95 per cent, $7.90@8; straight, $7.75@7.80.

NOTES

Harold C. Vogtel, sales manager for the H. D. Lee Flour Mills Co., will return this week from an eastern trip.

L. G. Gottschick, vice president and general manager of the H. D. Lee Flour Mills Co., attended a millers' meeting at Wichita on June 9.

Miss Marie Hill, assistant sales manager for the Shellabarger Mills & Elevator Co., has gone to Minneapolis on a two weeks' vacation.

M. C. Sauer, sales manager for the Robinson Milling Co., will return next week from Oklahoma, where he and his family have been spending their vacation.

EASTERN · STATES

WALTER QUACKENBUSH, EASTERN MANAGER

23 Beaver Street, New York, N. Y.

Correspondents at Baltimore, Boston, Buffalo, Philadelphia and Pittsburgh
Cable Address: "Palmking"

NEW YORK

Flour sales last week were limited, but there was more inquiry, and the trade seemed inclined to take on larger lots. However, the difference between its idea of price and that of millers was too wide.

New Crop Offers.—Sales seemed better on spring and soft winter grades than on Kansas. One broker reported that he had prices on southwestern straights, ranging $7@8, and depending upon how the mill was situated, in none of which were buyers interested. New crop flours were offered more freely, some at the same levels as old, and others as much as 30c below. No sales of Kansas grades have been reported in this market, although some of new Texas flours have been made.

Soft winters from the Pacific Coast have been offered the most freely. During the week, it was said that small sales of midwestern grades were made near the $8 mark, which was a slight loosening up after the recent scarcity. There were similar reports of offerings of New York state and Pennsylvania flours about 25c below these figures, but no large quantities were on the market.

Spring wheat flour prices were, on the whole, contained within narrow limits. Clears were not offered freely, and were relatively high.

Export showed more activity, and while sales were not large, there was a revival of interest among foreign buyers that seemed a preliminary to new business.

Flour Prices.—Quotations, June 9, all in jutes: spring fancy patents $7.65@8.50 bbl, standard patents $7.40@7.65, clears $7@7.25; hard winter short patents $7.50@8.30, straights $7@7.70; Pacific Coast soft winter straights, $6.95@7.35.

NOTES

Harry S. Leviston, Boston flour and feed broker, made a brief trip to New York last week.

C. F. Vandenburgh, sales manager for the Plant Flour Mills Co., St. Louis, spent part of last week in New York.

William J. Morris, Jr., of the New York office of the Washburn Crosby Co., Minneapolis, is spending several days at the home office.

M. Lee Marshall, chairman of the board of directors of the Continental Baking Corporation, is on a brief business trip to Minneapolis.

H. F. Behrens, general Latin American traveling representative of the Pillsbury Flour Mills Co., Minneapolis, returned on June 5 from South America.

John W. Eckhart, president of John W. Eckhart & Co., flour and grain exporters, Chicago, called upon his many friends in the New York flour trade, last week.

E. G. Broenniman, vice president of the Standard Milling Co., returned on June 8 from a visit to Minneapolis and his annual wheat inspection trip through the Southwest.

Fred W. Lake, of the Hall-Baker Grain Co., Kansas City, was introduced on 'change last week by John F. Gerard, wheat buyer for the Hecker-Jones-Jewell Milling Co., New York.

H. L. Ayers, sales manager for the Thomas Page Milling Co., Topeka, Kansas, while visiting eastern markets, spent several days last week with Leo Frank, who handles the account locally.

The City of New York purchased spring wheat, graham and pastry flour on June 11 in small quantities for various departments. The quantities ranged from six barrels for the department of health to 4,900 bags for the public welfare department; prices to be announced in about a week.

Visitors last week at the offices of the Frank R. Prina Corporation included H. F. Fleming, president of the St. Paul (Minn.) Milling Co., and Howard W. Adams, sales manager for the David Stott Flour Mills, Inc., Detroit.

Clearances of wheat and flour from the port of New York for the week ending June 2, as compiled by the Barr Shipping Corporation, totaled 1,271,527 bus and 71,054 bbls. The United Kingdom took 12,943 bbls, Rotterdam 12,135, and Copenhagen 10,950. The remainder went to eight different ports.

Among western millers who spent several days in New York following the Pennsylvania bakers' convention were J. L. Walker, sales manager for the Larabee Flour Mills Co., Kansas City, J. Mynor Ewing, vice president of the Cannon Valley Milling Co., Minneapolis, and J. S. Hitchings, of the Pillsbury Flour Mills Co., Minneapolis.

M. F. Lauro, who has been official flour chemist for the New York Produce Exchange since 1918, will receive the degree of master of science in chemistry from the Polytechnic Institute, Brooklyn, on June 13. Mr. Lauro received the bachelor of philosophy degree from Yale in 1913, and has since then been closely allied with flour and baking interests.

Eugene B. Nicolait, who has been in charge of the production department of the Quality Bakers of America since that organization was formed, resigned on June 1, to engage in business for himself. Gerald Billings, who has had much experience in the baking business and has been associated with Mr. Nicolait in the production department, has been appointed manager.

PHILADELPHIA

Flour was weak and unsettled the greater part of last week, due to declines in wheat, and prices generally were about 25c lower. At revised figures, however, there was more inquiry, and a fair business was done toward the close, mostly on a hand-to-mouth basis.

Prices, basis 140-lb jutes, June 9: spring first patent $8@8.50 bbl, standard patent $7.75@8, first clear $7.10@7.40; hard winter short patent $8@8.50, straight $7.75@8.25; soft winter straight, $7.75@8.50.

NOTES

Among recent visitors on 'change was Joseph H. Weaver, sales manager for the Nebraska Consolidated Mills Co., Omaha, Neb.

Charles A. Devlin, of Charles A. Devlin, Inc., and Wilfrid H. Robertson, president of Curtin & Brockie, have been elected directors of the Maritime Exchange.

A large delegation headed by S. Edward Knighton, president of the Flour Club of Philadelphia, attended the meeting of the Pennsylvania State Bakers' Association at Wernersville last week.

The Board of Trade, together with officials of the Commercial Exchange, the Bourse, the Maritime Exchange and the Port of Philadelphia Ocean Traffic Bureau, made a tour of the port on June 6.

J. C. JACKSON.

PITTSBURGH

Limited sales featured the flour market last week, with buyers not inclined to take on any large orders. Although stocks in the hands of the trade are light, no rush of new business is looked for until new crop flour arrives.

There is very little interest manifested in the new crop, and the larger mills have not yet made any quotations. Men in the trade here anticipate that there will be a continuance of hand-to-mouth buying for some time.

Quotations were slightly lower last week, the price range of hard winters being above that of springs. What sales were made were of the established brands. Clears were higher, and demand was better. Only a fair volume of soft winter flour was disposed of, due to the high prices. Most bakers who are large users of soft winter flour incline to the view that within a short time the quotations will be lower. Shipping instructions were improved. Semolina was quoted at 4c lb, f.o.b., Chicago. Sales were light.

Flour quotations, June 9, cotton 98's, Pittsburgh: spring wheat short patent $7.25@8.25 bbl, standard patent $7@7.50; hard winter short patent $7.50@8.25, standard patent $6.75@7.50; hard winter low protein standard patent, $6.50@7; clears, $6.50@7.25; soft winter, $7.25@7.75, bulk.

NOTES

Joe T. Taylor, head of the J. T. Taylor Brokerage Co., Pittsburgh, died, June 7, after an illness of three weeks. He was 54 years of age. Mr. Taylor was for a number of years in the flour business.

The monthly meeting of the Western Pennsylvania Bakers' Association will be held at the Roosevelt Hotel, Pittsburgh, June 19, at 12:30 p.m. Luncheon will precede the business session. Wayne T. Stoker, of the Fairmont Creamery Co., and H. B. MacNeal, of the Pittsburgh Pretzel Co., constitute the committee on arrangements. Horace W. Crider will preside.

C. C. LATUS.

BUFFALO

A little more interest was shown in flour last week. Bakers and jobbers came in on the break, and bought sufficient at 15@25c under the previous week's closing quotations to cover themselves for 45 days.

Prices, apparently, are assuming a level where the trade is showing a genuine interest. There is still a lot of flour on the books of local mills. Buffalo millers are receiving very little inquiry for new crop flour.

Output was reported at 63 per cent of total capacity, compared with 74 a month ago. Production still is above the average of recent years. Shipping directions were slow.

Better interest was shown in the export market. Buyers came in on the drop, but as soon as prices tightened they withdrew. Export men believe that if the market would give evidence of some stability a good export business would result, for stocks in foreign countries are known to be very light.

Kansas mill representatives cut their prices 10@20c, and found their trade a bit more responsive, although nothing unusual resulted.

Quotations, June 9, 98's, f.o.b., Buffalo: spring patents $8.45@8.70 bbl, standard patents $7.95, first clears $6.90@7, fancy clears $7.15@7.25; white rye $7.80, medium $7.60, dark $5.45; Kansas short patents $8.55@8.90, standard patents $8.10@8.50, bakers special patents $7.60@8; No. 2 semolina, 4¼c lb, bulk, lake-and-rail, New York.

Rochester quotations, June 9: spring patents $8.65@8.90, pastry $8.80 and white rye $8, 98-lb cottons, car lots.

Output of Buffalo mills, as reported to The Northwestern Miller:

	Weekly capacity bbls	Flour output bbls	Pct. of activity
June 3-9	255,500	162,110	63
Previous week	255,500	166,984	66
Year ago	238,000	193,790	81
Two years ago	238,000	194,967	82
Three years ago	238,000	174,582	73

NOTES

Joseph W. Hannes, formerly with the Thornton & Chester Milling Co., returned to this city last week following a two months' rest in the South, where he went to regain his health.

Harry C. Veatch, general eastern sales manager for the Kansas Milling Co., Wichita, Kansas, has returned from a business trip through Virginia, West Virginia, North Carolina and Tennessee.

Fifty members and guests of the Buffalo Flour Club attended the annual outing and field day held at the Launch Club on Grand Island, June 12. The committee that arranged for the annual frolic was headed by M. C. Burns, Traders' Feeds & Grain Co., H. C. Elwood, Colonial Salt Co., W. J. J. Moore, Buffalo Flour Mills Corporation, and George B. Wood, Seymour-Wood Grain Co.

Over 120 employees of the Buffalo plant of the Pillsbury Flour Mills Co., members of the Pillsbury Booster Club, journeyed to Grand Island last week for their annual field day. The offices were closed at noon, and the trip to the boat was made by automobile. A buffet luncheon was served on the steamer Island Belle, and a program of athletic games in the afternoon and dancing in the evening was provided.

BOSTON

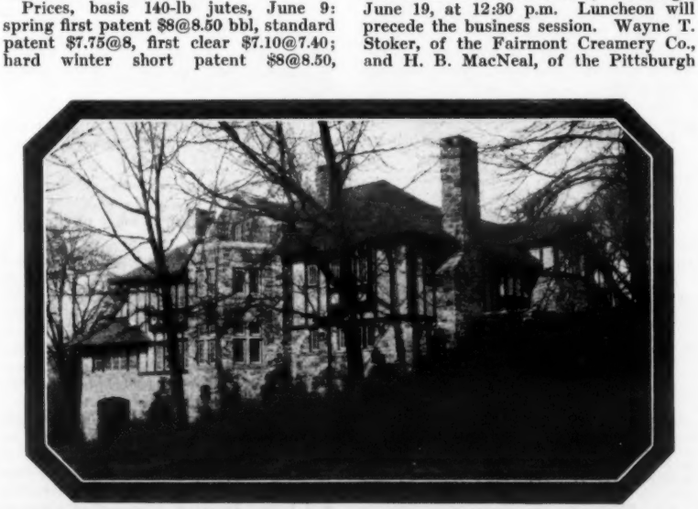
Demand for flour was slow last week. Apparently, no one here has much faith in present prices.

Flour prices, mill shipment, per 196 lbs, in sacks, Boston points, on June 9: spring patents, special $9@9.30, standard patents $7.75@9, first clears $7.25@7.80; hard winter patents, $7.75@8.60; soft winter patents $8.10@9.30, straight $7.65@8.20, clears $7.40@7.90.

NOTES

H. J. Schell, of Eshelman & Co., Lancaster, Pa., visited the Boston Grain & Flour Exchange last week.

Members of the Boston Grain & Flour



ONE of the distinguished homes of the beautiful Pelham Manor section is that of A. P. Walker, president of the Standard Milling Co. The illustration, showing but one elevation, gives only an impression of the house itself and the surrounding grounds. While Mr. Walker's personal attention is chiefly given to milling, he is active in many other important industries, with directorships in the Bank of America, Remington Typewriter Co., Keystone Warehouse Co. and similar widely known concerns. He is a member of the Racquet & Tennis and numerous other clubs, including those given to hunting and fishing.

Exchange and the Boston Curb Exchange enjoyed their annual outing at Pemberton Inn, Hull, Mass., June 9. A trip down the harbor, followed by a dinner, were the principal features of the occasion. A ball game, running races, quoits and other games were on the program.

Arthur J. Mackay, New England representative of the Federal Mill & Elevator Co., Lockport, N. Y., has been elected to active membership in the Boston Grain & Flour Exchange. He takes the place of Charles F. Lingham, who has been representing the mill in this section for about a year, but who now goes back to Lockport. LOUIS W. DEPASS.

BALTIMORE

Last week was practically a blank one for trading in flour locally. It seemed to be a stand-off between buyers and sellers, with neither side showing the least disposition to take the initiative, the mills refusing to reduce, with feed going down, and buyers refusing to pay current rates in the face of lower wheat. Offerings were light, with standard spring patent nominally quoted at $7.25@7.50, and near-by soft winter straight at $7.25@7.50, the former basis new cottons and the latter secondhand cottons. Hard winters are still out of the running, though it is more than likely that new crop offerings at tempting prices would meet with recognition.

Nominal closing prices, June 9, car lots, per barrel, in 98-lb cottons, 65c more in wood, or 15@25c less in bulk: spring patent first $7.75@8, standard patent $7.25@7.50; hard winter short patent $7.75@8, straight $7.25@7.50; soft winter short patent $8@8.25, straight (near-by) $7.25@7.50.

NOTES

Included in receipts last week were 5,520 bbls flour and 184,409 bus barley destined for export.

J. S. Green, secretary and treasurer of the Williams Bros. Co., miller, Kent, Ohio, visited this market on June 9.

J. Frank Ryley, formerly of John T. Fahey & Co., grain receivers and exporters, has applied for membership in the Baltimore Chamber of Commerce.

William H. Hayward, of Hayward & Co., brokers and agents in flour, feed and grain, exhibited on 'change last week some very large strawberries, grown at his home in Ruxton.

It looks as though this part of the country is going to be blessed with a good crop of wheat this season. Showers and sunshine have been the order of the day for some time.

The local representative of an important Indiana maize products company which does a large business in gluten feed and meal claims the mill is sold ahead until September.

The present maritime department of the Baltimore Chamber of Commerce on June 7 celebrated its twenty-ninth anniversary under the able management of Charles A. Ruth, superintendent.

Visitors last week included H. C. Vogtel, assistant treasurer of and sales manager for the H. D. Lee Flour Mills Co., Salina, Kansas, and Frank Hutchinson, manager of the Lawrenceburg (Ind.) Roller Mills Co.

The local branch of the Ward Baking Co. is sending a circular letter to families of Baltimore, urging them to save $32.85 each by "using Ward's Fine Bread for one year at 10c a loaf, compared with other bread of the same size and quality, retailing for 13c."

Cash No. 2 red winter, garlicky, domestic wheat in this market, after selling even with cash No. 2 red winter, domestic, for some months, is now selling at a discount of 3¼c bu, which is a pretty good indication that the trade is getting ready for the new crop.

Thomas Steven Eader, a grain inspector of the Chamber of Commerce, and Miss Myrtle Elvira Parrott were married at St. Michael and All Angels Protestant Episcopal Church on June 9. The grain inspectors of the exchange presented the bride and groom with a handsome silver percolator, cream pitcher, sugar bowl, and tray, together with a breakfast set comprising 80 pieces of "golden glow" china. C. H. DORSEY.

PACIFIC COAST

WALTER C. TIFFANY, MANAGER

649 Central Building, Seattle, Wash.

Correspondents at Los Angeles, Portland and San Francisco

Cable Address: "Palmking"

SEATTLE

The usual crop year end dullness dominated the flour trade in north coast markets last week, which was intensified by the sharp drop in prices. Most of the larger bakeries have sufficient bookings to last into the new crop. A fair volume of hand-to-mouth sales, however, was made. Family flour sales were about normal.

Demand for soft winter wheat flour from both rail and water shipment territory in the eastern half of the United States continued good, though less active. Sales were restricted by prices being out of line, on account of the strength of Pacific winter wheat and the comparatively lower prices of No. 2 and No. 3 red in St. Louis territory.

Flour Prices.—Washington flour quotations, carloads, coast, June 8: family short patent $8.10@8.60 bbl, basis 49-lb cottons; pastry flour $6.25@6.50, 98's; standard patent $7@7.25, 98's; blends, made from spring and Pacific hard wheats, $7.75@9, 98's. Hard wheat top patents, carloads, coast, arrival draft terms: Dakota, $8.50@9.30; Montana, $7.80@8.80.

Export Trade.—Flour sales to the Orient were confined to a few small parcels. United Kingdom and South American purchases also were very light.

FLOUR OUTPUT

Output of Seattle mills, as reported to The Northwestern Miller:

	Weekly capacity bbls	Flour output bbls	Pct. of activity
June 3-9	46,800	30,191	57
Previous week	46,800	23,691	50
Year ago	46,800	21,771	47
Two years ago	52,800	22,901	43
Three years ago	52,800	12,390	23
Four years ago	52,800	31,169	59
Five years ago	52,800	10,081	19

Output of Tacoma mills, as reported to The Northwestern Miller:

	Weekly capacity bbls	Flour output bbls	Pct. of activity
June 3-9	57,000	29,633	52
Previous week	57,000	23,028	40
Year ago	57,000	32,288	57
Two years ago	57,000	24,432	43
Three years ago	57,000	16,743	29
Four years ago	57,000	27,918	49
Five years ago	57,000	9,841	17

FLOUR AND WHEAT SHIPMENTS

Water shipments of flour and wheat from Puget Sound (Seattle and Tacoma), and from the Columbia River (Portland and Astoria), July 1, 1927, to June 1, 1928, as reported by the merchants' exchanges of Seattle and Portland:

FLOUR, BBLS

	From		
To—	Puget Sound	Columbia River	Totals
Europe	221,834	62,910	284,744
Orient	1,546,832	953,408	2,500,240
South and Central America	216,225	74,709	290,934
Hawaii	105,742	12,677	118,419
California	302,255	880,842	1,183,097
Atlantic ports	211,827	287,847	499,674
British Columbia	38,191	.....	38,191
Cuba	.....	4,019	4,019
Brazil	10,890	.....	10,890
Alaska	51,992	.....	51,992
Totals	2,705,788	2,276,412	4,982,200

WHEAT, BUS (000'S OMITTED)

	From		
To—	Puget Sound	Columbia River	Totals
Europe	6,626	34,889	41,515
California	1,145	368	1,513
Hawaii	60	...	60
C. and S. America	115	689	804
Orient	2,633	3,577	6,210
British Columbia	116	...	116
Atlantic ports	39	26	65
Africa	37	...	37
Totals	10,771	39,549	50,320

NOTES

Flour exports to the Orient from the Pacific Northwest for the 11 months of the crop year are somewhat less than a year ago—1,500,240 bbls, against 1,728,626.

Exports of flour from Seattle and Tacoma in May: to the Orient, 102,765 bbls; Europe, 12,765; South and Central America, 16,470; Hawaii, 9,355; British Columbia, 3,245.

In spite of the fact that the high premiums for high protein wheats in the Pacific Northwest this year have curtailed shipments of hard wheat flours to Atlantic ports, total shipments, on account of the increased demand for soft winters, have been nearly as large—499,675 bbls, against 556,260.

Of 830 carloads wheat inspected at Seattle by the Office of Federal Grain Supervision in May, 358 graded No. 1, 244 No. 2, 99 No. 3, 62 No. 4, 30 No. 5, 37 special grade, and 244 were smutty. At Tacoma, of 528 carloads inspected, 263 graded No. 1, 172 No. 2, 45 No. 3, 31 No. 4, 10 No. 5, 7 special grade and 159 were smutty.

SAN FRANCISCO

Flour is weaker, and the general feeling among the trade is bearish. Dealers are endeavoring to reduce surplus stocks, and are giving bakers the benefit of reduced prices. This trade has taken care of bakers who were a little short of flour, and made further mill purchases unnecessary. Very little new business will be available until new crop. Quotations, June 8, basis 98's, carload lots, delivered, San Francisco, draft terms: California family patents $8.80@9 bbl; Idaho family patents, $8.70@8.90; Montana patents $8.75@9, clears $6.50@6.70; Kansas patents, $8.50@9; Dakota top patents, $9.50@9.75; Oregon-Washington blue-stem patents, $7@7.20; Idaho hard wheat patents, $7.75@8.25; northern straight grades, $6.60@6.80; California pastry, $6.40@6.60.

NOTES

Bernard H. Boehmer, credit manager of the Albers Bros. Milling Co., San Francisco, died recently after a week's illness.

Moore-Ferguson & Co. and the Sharp Flour Co. have been admitted to the flour chapter of the San Francisco Association of Credit Men.

R. D. Joyce, San Francisco manager of the Globe Grain & Milling Co., Los Angeles, is spending a week's vacation with his family in Santa Barbara, Cal.

At the last meeting of the San Francisco Flour Dealers' Association the following officers were elected for the ensuing year: R. C. Slocum, of the Coast Dakota Flour Co., president; H. C. Loberg, vice president; E. O. Boyer, of the Sperry Flour Co., secretary; H. L. Dalton, chairman of the executive committee.

E. M. LITSINGER.

OGDEN

Only small lot orders for immediate delivery were booked by Ogden millers last week, lower prices in the southeastern states and intermountain territory having a deterrent effect on business. Shipping instructions continued heavy, mills having small stocks, despite capacity operations throughout the entire week. As grain supplies decline, millers are making ready for the new crop, anticipating that wheat from Utah points will be received early in August.

While Ogden mills are running full time, country points report that many are being shut down until the new crop arrives.

Quotations to southeastern buyers were lowered 20c last week, the offers (all in 98-lb bags) being as follows on June 9: high patents $8.15@8.60 bbl, and straights $8@8.10, car lots, f.o.b., Memphis and other lower Mississippi River common points. Utah and Idaho dealers were informed of a 20c reduction, offers being as follows: family patents $7.80@8.30, second patents $8.20@8.30, and straights $7.40@7.55, car lots, f.o.b., Ogden. Quotations to California buyers were unchanged, being as follows: first patents $8.30@8.35, second patents $8.15@8.30, and straights $7.85@8.15, car lots, f.o.b., San Francisco and other California common points.

NOTES

In order that the additions to the Sperry Flour Co. and Royal Milling Co. elevators may be completed by Aug. 15, C. F. Dinsmore & Co., contractors, have started night building operations.

Twenty elevator managers of the Sperry Flour Co. attended a conference in Ogden, at which H. P. Iverson, Ogden manager, presided. Mayor Frank Francis spoke regarding western industrial and business conditions.

W. E. ZUPPANN.

PORTLAND

The local flour trade continues light. Prices were unchanged last week, and at the close were $8.30 for family patents, $8.50 for hard wheat, and $7.90 for blue-stem second in straight cars.

Only a few deals in export flour were reported. Not much oriental business is expected during the summer, but in view of the probable early ending of the war in China, millers are looking forward to a better fall trade.

Output of Portland mills, with a weekly capacity of 66,900 bbls, as reported to The Northwestern Miller:

	Output bbls	Pct. of activity
June 3-9	14,995	22
Previous week	13,388	20
Year ago	21,306	34
Two years ago	24,134	38
Three years ago	12,690	20
Four years ago	39,400	63
Five years ago	22,506	36

NOTES

The visible wheat supply at Portland and Astoria, June 9, was 520,706 bus, an increase of 50,413 for the week. The total a year ago was 634,000 bus.

Flour shipments from Portland last week were 21,072 bags to New York and 2,300 to Boston. Wheat shipments were 130,666 bus to England and 1,407 to Boston.

The radio service established by the Portland Merchants' Exchange will begin operations on July 1. Its call letters will be KPK, and it is intended mainly for ship news service.

Wheat shipments from the river last month were 1,141,480 bus, against 1,314,209 in May last year. For the season to date, wheat shipments have been 39,551,845 bus, compared with 28,616,645 in the corresponding period last season.

Flour shipments from the Columbia River last month were 213,783 bbls, of which 87,253 went to California, 82,050 to the Orient, 41,414 to Atlantic ports, 1,900 to Central and South America, 880 to Hawaii and 286 to Europe. The total compares with shipments of 147,296 bbls in the same month last year. For the season to date shipments have been 2,276,412 bbls, against 1,675,740 in the same period last season.

The third annual convention of the Pacific Coast Seedsmen's Association closed here with the election of the following officers: president, Waldo Rohnert, Gilroy, Cal; vice president, Frank Leckenby, Seattle; secretary-treasurer, R. E. Mason, San Francisco; directors, William B. Early, Los Angeles, Albert M. Hand, Portland, Manfred Meybert, Los Angeles, and C. B. Cropper, Phoenix, Ariz.

J. M. LOWNSDALE.

NEW WASHINGTON ELEVATOR

SPOKANE, WASH.—An elevator of reenforced concrete and steel, to cost $25,000, is to be built for the Washington Grain & Milling Co., Davenport, Wash. This elevator, which will be of 60,000 bus capacity, will be the eighth in the milling company's chain along the Northern Pacific Railway in the Big Bend wheat country.

THE MILLFEED MARKET

CENTRAL WEST

Chicago.—Millfeed, after a slump early last week, later regained the loss, due to a good buying spurt. Demand was general from mixers and dealers, and all grades were wanted. The previous week there were free offerings, but buying last week snapped up practically everything available. While demand was mostly for near-by shipment, eastern buyers were willing to take on some for deferred delivery. On June 9, spring bran was quoted at $31.50@32 ton, hard winter bran $32@32.75, standard middlings $37@38, flour middlings $41@42, and red dog $43@44.50.

Milwaukee.—Bran and middlings were both up $1.50 at the close. There was a fair demand. Inquiry was good from all points. Winter bran was up $1 and on the closing day flour middlings and red dog firmed up considerably. Flour middlings closed $2 higher and red dog was up $1.50@2. Quotations, June 9: spring bran $31.50@32 ton, winter bran $31.50@32, standard middlings $37.50@38, flour middlings $42@42.50, and red dog $43@43.50, in 100-lb sacks, car lots, f.o.b., Milwaukee.

St. Louis.—Millfeed closed the week in fairly good demand, with offerings scarce. Quotations, June 9: soft winter bran $32@32.50 ton, hard winter bran $32@32.25, and gray shorts $42@43.

THE NORTHWEST

Minneapolis.—The inquiry for feed that set in June 4 continued throughout last week, driving bran prices upward $3@3.50 ton. Quick shipment offerings were quickly absorbed, so that on June 12 the market was bare of offerings and prices were very strong. Standard middlings and flour middlings also have strengthened, and are in good demand. City mills are out of the market on everything for June shipment and, on account of light production, are bullish. Speculators are holding aloof. They do not care to contract ahead at anywhere near present levels, so that current trading is all for quick shipment. Mill quotations are nominal. Bran is held at $30 ton, standard middlings $35@36, flour middlings $39@40.50, red dog $42@43, wheat mixed feed $34@37 and rye middlings $32@33, f.o.b., Minneapolis.

Minneapolis car lot prices of millfeed, prompt shipment, per 2,000 lbs, in 100-lb sacks, as reported by brokers:

	June 12	Year ago
Bran	$30.00@31.00	$26.50@27.00
Stand. middlings	35.50@36.00	29.00@30.00
Flour middlings	40.00@41.50	34.50@35.50
R. dog, 140-lb jute	42.00@43.00	40.00@42.00

Duluth.—Quite a good demand was reported for bran last week. One mill, with a little surplus, sold it for shipment this month and next at about $1 over the current price. Red dog and middlings maintained their firmness. The other mill advised no new business done.

Great Falls.—Feed demand is holding up fairly well, with prices unchanged to $1 lower. Quotations, car lots, f.o.b., mill, June 9: middlings, $29@30 ton; mixed feed, $27@28; bran, $27@28.

THE SOUTHWEST

Kansas City.—Following the sharp break in bran prices the first day or two of this month, demand for that product developed rapidly, calls coming from a wide territory. Prices subsequently rallied $2@3 ton, standard bran selling late last week for $30@30.50, and pure bran for quick shipment going as high as $31. Standard bran, July-September shipment, sold in moderate volume at $28.50, and pure bran for the same deliveries at $28.75. Inquiry for this new crop feed is rather brisk, but offerings are confined to a few mills. Shorts are scarce and high, and prices again strengthened. Gray shorts sold as high as $41 for quick shipment, and around $37.25 for July-August-September. An extra heavy inquiry exists for brown shorts and red dog, with little of either available. Brown shorts are quoted at $38.75@39.25 ton, and red dog at $43.50@44.50.

Atchison-Leavenworth.—Millfeed last week advanced sharply, due to mill operations being limited. Bran sold freely at $31 ton, mill-run bran $34 and shorts $38.50@39.

Hutchinson.—Millfeed demand is holding up surprisingly well, and bookings continue to equal the capacity of the mills. Some for delivery after the new crop has been sold. Bran prices are weaker, but there is a fairly good demand. Shorts continue strong. Prices, Kansas City basis, June 8: bran $30 ton; mill-run, $34@35; gray shorts, $39@40.

Salina.—Millfeed advanced $1 last week, with fair demand. Quotations, June 7, Kansas City basis: bran, $33.50@34.50 ton; mill-run, $35@36.50; gray shorts, $38@39.

Oklahoma City.—With a good demand existing for bran and mill-run, the mills have been able to supply customers with moderate quantities. Some feed was shipped in. Shorts are not in such active demand. Prices, June 8: straight bran, $1.60 per bag of 100 lbs; mill-run, $1.80; shorts, $2.05.

Wichita.—Demand for millfeed continues brisk. Mills are unable to meet that for shorts, but are breaking about even on bran. Quotations, June 8: shorts, $40 ton, basis Kansas City; mill-run, $33.50; bran, $30.

Omaha.—As a result of light production, the millfeed market advanced last week. Demand is fair for both spot and deferred shipment.

CENTRAL STATES

Evansville.—Millfeed continues in fairly good demand, and all grades are moving nicely. Quotations, June 9: bran, $35 ton; mixed, $39.50; shorts, $43.

Toledo.—Millfeed, particularly bran, after an erratic career, has settled down to what looks like a stronger and more stable basis. One reason may be that cuts in price cleaned up stocks pressing on the market. Middlings were more stable. The undertone now is much better. Soft winter wheat bran was quoted, June 8, at $39 ton, mixed feed $42 and middlings $45@46, a spread of $6@7 between bran and middlings.

Indianapolis.—Millfeed prices were somewhat lower last week. The heavier grades seem to be holding up better both in demand and price than others. Shipping instructions are only fair. Quotations, June 9: hard winter bran $31@32 ton, spring bran $30@31, standard middlings $36@37, flour middlings $40@41 and red dog $41@42.

THE SOUTH

Atlanta.—There was another decline last week in millfeed prices, and brokers report a further improvement in sales, though relatively few orders are being placed by even the largest dealers beyond 30-day needs, as buyers believe there will be further declines. Movement is fairly brisk, as most buyers are asking immediate delivery. Millfeed plants are operating about 60 per cent of capacity, but expected to increase output considerably if sales continue to improve. Quotations, June 9, f.o.b., Atlanta: pure wheat bran, basis 100-lb bags, $40@41 ton; gray shorts, $46@47; brown shorts, $45@46; red dog, $49@50.

Nashville.—Easier prices prevailed on millfeed last week. Wheat bran was $1 lower, but middlings remained about unchanged. While demand was lighter, supplies were not large as mills have been curtailing running time. Good pasturage has been diminishing consumption of feeds. Quotations, June 9: soft winter wheat bran, 100-lb bags, f.o.b., Ohio River stations, $36@39 ton; middlings, $40@43.

Memphis.—Buyers took only small lots of millfeed early last week, although offering were not free. Wheat bran sold as low as $31.50@32 ton, but nothing now is being offered under $34, and some shippers want even more. Gray shorts are up $2 or more, being quoted at $44 or over. Mills advise that the scarcity is due to small flour output.

Norfolk.—Feed prices continue firm. Quotations, June 8: red dog, $48@49 ton; flour middlings, $47@48; standard middlings, $42.50@43.50; standard bran, $39@39.50.

New Orleans.—Millfeed buyers seemed inclined last week to hold off, although sales were fair. Export demand was good. The largest single shipment was 3,695 sacks to San Juan. Quotations, June 7: wheat bran, $1.90 per 100 lbs; shorts, $2.20.

CANADIAN FEED EXPORTS

Exports of bran, shorts, etc., from Canada in the month of April, 1928, as officially reported, amounted to 1,979 tons, valued at $71,581. Of this amount 1,830 tons were exported to the United States.

For the nine months from Aug. 1, 1927, to April 30, 1928, Canada exported 77,931 tons bran, shorts, etc., valued at $2,219,372, of which 74,685 tons were exported to the United States.

THE EAST

Buffalo.—Millfeed prices advanced $3 last week with the report that there were no red dog flour, middlings or heavy mixed feeds available until July and offerings for that month limited. Local mills are not offering anything except with flour, limited to 30-day shipment. Quotations, June 9: spring bran, sacked, $36 ton; standard middlings, $39; red dog, $45; heavy mixed feeds, $42; flour middlings, $44.

Baltimore.—Millfeed was irregular last week, starting sharply lower and closing sharply higher, but with no signs of activity in the local market either early or late. Quotations, June 9, basis prompt and deferred shipment, in 100-lb sacks, per ton: spring bran, $37.50@38; soft winter bran, $38@38.50; standard middlings, $41@42; flour middlings, $47@47.50; red dog, $48.50@49.

Boston.—A dull demand prevailed for domestic wheat feeds last week, with prices $1@1.50 lower. Offerings were moderate, but more than sufficient. Other feeds quiet and a shade lower. Quotations, June 9: spring bran $38.50@39 ton, hard winter bran $38.50@39, soft winter bran $39@39.50, standard middlings $40.50@41, flour middlings $42.50@43, red dog $49.50, stock feed $48, and reground oat hulls $36, all in 100-lb sacks, Boston points, prompt or near-by shipment. Canadian shippers are offering pure bran and middlings for shipment at about the same prices quoted for domestic feeds.

Pittsburgh.—Sales were in small lots, with rather urgent demands for prompt shipment by some of the buyers. Offerings were moderate. Quotations, June 9: standard middlings, $40@41 ton; flour middlings, $44.50@45.50; spring wheat bran, $34.50@35; red dog, $47@48.

Philadelphia.—Buyers are showing more interest in millfeed, and the market is firmer under light offerings. Quotations, June 9, prompt shipment: spring bran, $36@37 ton; hard winter bran, $36@37; soft winter bran, $37@38; standard middlings, $38.50@39.50; flour middlings, $45.50@48.50; red dog, $48.50@50.

PACIFIC COAST

San Francisco.—Millfeed sales are possible only at prices considerably under present mill quotations. While the north coast market is weaker, prices obtainable there are still above buyers' ideas in this market. Offerings, generally, continue very light from both the north coast and Montana, while nothing is available from intermountain mills. Quotations, June 8, basis carload lots, delivered, San Francisco, draft terms, prompt shipment: Kansas bran, $39@40 ton; Idaho blended mill-run, $39.50@40: Idaho white mill-run, $40.50@41.50; northern white bran and mill-run, $38.50@39.50; northern standard mill-run, $37@38; shorts, $39@40; middlings, $44@45; Montana bran and mill-run, $37.50@38.50; low grade flour, $46@47.

Seattle.—Millfeed was easier last week, and buyers were able to secure concessions. Lack of demand rather than abundance of supplies was the cause. Washington standard mill-run was quoted as $33 ton; white, $33.50; Montana red, $32.50.

Portland.—Millfeed is easier. Offerings by outside mills have become larger, and there has also been some slacken-

SUMMARY OF MILLFEED QUOTATIONS

Millfeed quotations reported to The Northwestern Miller by wire Tuesday, June 12, based on carload* lots, prompt delivery, per ton, packed in 100-lb sacks:

	Chicago	Minneapolis	Kansas City	St. Louis	Baltimore
Spring bran	$32.50@33.00	$.....@30.00	$.....@.....	$.....@.....	$37.50@38.00
Hard winter bran	32.50@33.00	.....@.....	30.00@30.50	32.50@32.75	.....@.....
Soft winter bran	.....@.....	.....@.....	.....@.....	32.50@33.00	38.00@38.50
Standard middlings*	.....@38.50	35.00@36.00	38.75@39.25	.....@.....	41.00@42.00
Flour middlings†	.....@43.00	39.00@40.50	.....@41.00	42.50@43.50	47.00@47.50
Red dog	.....@45.00	42.00@43.00	43.50@44.50	.....@.....	48.50@49.00

	Buffalo	Philadelphia	Boston	Columbus	Nashville
Spring bran	$.....@36.00	$37.50@38.50	$38.50@39.00	$36.00@37.00	$.....@.....
Hard winter bran	.....@.....	37.50@38.50	38.50@38.75	36.00@37.00	.....@.....
Soft winter bran	.....@.....	38.50@39.50	39.00@39.50	36.50@39.00	36.00@39.00
Standard middlings*	.....@39.00	39.50@40.50	41.00@41.50	39.00@40.00	40.00@43.00
Flour middlings†	.....@44.00	47.00@47.50	44.00@44.50	44.50@45.50	.....@.....
Red dog	.....@45.00	49.50@51.50	.....@49.50	47.00@48.00	.....@.....

	Spring bran	Shorts	Middlings
Toronto	$.....@35.00	$.....@37.00	$.....@43.00
¶Winnipeg	.....@30.00	.....@32.00	.....@.....

*Brown shorts. †Gray shorts. ¶Fort William basis.

Prices ruling in the principal millfeed markets on Monday, June 11, and on the corresponding date in 1927, as reported by the Western Feed Market Bureau, Milwaukee, were, per ton:

	1927	1928
Minneapolis—		
Bran	$27.00	$29.00@29.50
Pure wheat bran	27.50	29.00@29.50
Middlings	29.50	35.00@35.50
Flour middlings	34.00	38.50@39.50
Red dog	40.00	40.00@40.50
Mixed feed	31.00	31.00@32.50
Old process oil meal	47.00	50.50@51.50
Bran*	37.00	37.50@38.00
Middlings*	38.50	42.00@42.50
Red dog*	44.50	48.00@49.00
Duluth—		
Bran	29.00	30.50@31.00
Middlings	30.00	.....@36.50
Flour middlings	36.00	39.50@40.50
Country mixed feed	29.50	33.50@34.50
Red dog	41.00	40.50@41.50
St. Louis—		
Bran	29.50	31.00@31.50
Brown shorts	31.50	36.00@37.00
Gray shorts	34.50	40.00@41.00
Oat feed	10.50	25.00@26.00
Hominy feed	28.00	38.00@39.00
Buffalo—		
Pure bran	33.00	33.50@34.50
Bran	32.50	33.00@34.00
Standard middlings	34.50	36.00@37.00
Flour middlings	37.00	40.00@41.50
Red dog	41.00	43.00@43.50
Heavy mixed feed	36.00	40.00@41.00
Oil meal	47.50	51.00@52.50

*Boston. †Chicago. ‡100 lbs. §July. ‖August.

	1927	1928
Kansas City—		
Pure bran	$27.50	$29.50@30.50
Bran	27.00	30.00@31.00
Brown shorts	30.00	36.50@37.50
Gray shorts	31.50	38.00@38.50
Red dog	40.00	42.00@42.50
Philadelphia—		
Winter bran	38.00	37.50@38.50
Pure bran	38.00	38.00@38.50
Spring bran	37.00	37.50@38.00
Spring middlings	38.00	39.50@40.50
Red dog	44.00	46.00@46.50
Flour middlings	43.00	45.00@46.00
Milwaukee—		
Winter bran	30.00	31.50@32.00
Bran	30.00	31.50@32.00
Middlings	32.00	37.50@38.00
Flour middlings	37.00	42.00@42.50
Red dog	42.50	43.00@43.50
Rye feed	29.00	35.50@36.00
Cottonseed meal	42.00	56.00@68.00
Brewers' dried grains†	26.00	33.00@34.00
Hominy feed*	44.00	45.00@46.50
Gluten feed‡	34.60	$38.70 ‖39.20

Rate to Boston from—	Lake-and-rail	All-rail
Minneapolis	$8.30	$9.10
Duluth	7.00	9.10
St. Louis	....	7.50
Kansas City	8.90	9.70
Milwaukee	5.70	6.50
Buffalo	....	4.70

ing of demand here. Mills at the close on June 9 quoted mill-run at $33 ton in straight cars.

Ogden.—Active buying of millfeed was reported last week. Prices continued firm and unchanged. California continued to absorb the major portion of Utah millfeed production, shipments to San Francisco and Los Angeles being especially heavy, with some car lots to interior points. Poultry and dairy feeding was responsible largely for the heavy business. On June 9, buyers in California were quoted red, white and blended bran and mill-run at $41 ton and middlings at $52, car lots, f.o.b., San Francisco and other California common points. Utah and Idaho dealers were quoted all grades of bran and mill-run at $37 and middlings at $47, car lots, f.o.b., Ogden.

CANADA

Montreal.—Improved pasturage and a slackening in demand from New England combined to reduce the general demand for bran, shorts and middlings last week, and prices were marked down $2. This makes a total reduction of $4 from the peak attained last winter. Demand is very light and mill stocks are increasing, while country merchants are content to mark time. Quotations, June 7: bran $35.25 ton, shorts $37.25 and middlings $43.25, jutes, f.o.b., cars, Montreal rate points. Fort William: bran $27, shorts $29 and middlings $35, jutes, extrack, net cash; $1 less when they contain mill-run screenings.

Winnipeg.—Abundant pasturage has reduced demand for bran and shorts, and they have declined in price. Mill stocks are light. Quotations, June 9, basis Fort William and Port Arthur: Manotoba points, bran $30 ton, shorts $32; Saskatchewan, bran $30, shorts $32; Alberta, bran $31, shorts $33; British Columbia, bran $31@33, shorts $33@35; Pacific Coast, bran $34@36, shorts $36@38.

Toronto.—Millfeed demand last week was sufficient to absorb all current offerings, and some in the trade look for prices to hold at near present figures unless the demand for flour improves. Shorts, particularly, are wanted. Quotations, June 9: bran $35 ton, shorts $37 and middlings $43, bags included, in mixed cars with flour, spot cash terms, delivered, Ontario points.

SCREENINGS

Minneapolis.—Screenings have not as yet responded to the strength in millfeed. Trading, of course, is restricted by the limited supplies, but no difficulty is met with in disposing of any offerings that come on the market. Light-weight elevator screenings are readily salable at $14@15 ton, good 25-lb screenings at $20.50@23 and seeds at $24@25, while mill oats will bring 55@59c bu, according to test weight.

Winnipeg.—Light stocks and a good demand account for the high price of screenings. Shut-offs are $15 ton and recleaned $30.

Buffalo.—There is practically no market for screenings in Buffalo. High and unsettled prices prevail.

MIXED FEEDS

Chicago.—Demand for scratch and mash feeds is fairly active. Dairy feeds continue to move slowly. On June 9, 24 per cent dairy feeds were quoted at $52.50@54.50 ton, scratch feeds $50@52, and mash feeds $62@65.

St. Louis.—No change was reported by manufacturers of mixed feeds last week. Business continues active, with buying general, and prices steady and firm. The business that is being done is largely on a current basis, although some booking for future delivery is reported. High grade horse feed was quoted, June 9, at $50.50 ton, high grade dairy feed $55, and scratch feed $55.50.

Nashville.—Mixed feeds were in only fair demand last week, with no material change in prices. Quotations, June 9: dairy feed, 100-lb bags, at Nashville mills, $42@54 ton; poultry scratch feed, $50@56; poultry mash feed, $60@75.

Atlanta.—Brokers say there was little change last week in the mixed feed situation, larger buyers placing orders for immediate or near future wants, some orders reported up to 30-day wants, but comparatively few coming in from small dealers. Mixed feed mills are operating about 60 per cent of capacity. Manufacturers are looking for more active production before the end of the month, as prices are expected to go downward. Quotations, June 9, f.o.b., Atlanta: best grade horse feed $50@52 ton, lower grades $40@42; best grade chicken feed $58@60, lower grades $51@52; best grade dairy feed $57@60, lower grades $47@50.

Memphis.—Mixed feed business was reported not quite so good last week at local mills. Quotations were somewhat lower.

Indianapolis.—Jobbers and dealers in mixed feeds are prone to attribute much of the sluggish demand to high prices. Largely because of this, buyers are not taking on business as they usually do at this time for future delivery. Manufacturers say there can be no reduction in prices, with corn and oats maintaining their high levels. Shipping instructions are rather active. Quotations, June 9: high grade dairy feeds $50@51 ton, mash feeds $63@66 and scratch feeds $49@50.

Montreal.—Prices are unchanged, and demand for mixed feeds continues fairly active. Quotations, June 7, car lots, f.o.b., Montreal rate points: barley meal $53.25 ton, oat moulee $57.25, and mixed moulee $55.25, all in jutes.

Toronto.—Prices of all lines of mixed feeds are unchanged. Sales are not as heavy as some weeks ago, but are considered satisfactory. Quotations, June 9: oat chop $56 ton, oat and barley chop $54, crushed oats $56, corn meal $53, feed wheat $57, oat feed $35 and chick feed $68, mixed car lots, net cash terms, delivered, country points.

ALFALFA MEAL

St. Louis.—New crop No. 2 alfalfa meal, in secondhand sacks, on June 9 was quoted at $27 ton, No. 1 in new sacks at $31 and choice in new sacks at $33.50, June shipment.

Chicago.—New crop alfalfa meal is being offered here, and a fairly good demand is reported for June shipment. On June 9 new crop choice medium was quoted at $36 ton, Chicago, No. 1 medium $33, and No. 2 medium $30. Fine ground was $3 more.

Omaha.—The alfalfa meal market is easier, new offerings having arrived from the Far Northwest. Local mills are using the bulk of their product in their own mixed feed.

COTTONSEED MEAL

New Orleans.—Offerings of cottonseed products were light last week, and the market firm. Trading was quiet both in the domestic field and for export. Shipments were only 600 bags, taken by Mayaguez. Quotations, June 7: choice cake, 8 per cent ammonia, bulk, $57@58 ton; meal, 8 per cent ammonia, sacked, $59@60; hulls, sound quality, $15@15.50.

Kansas City.—Prices for cottonseed meal are slightly lower. Demand and supply are limited. Quotation, June 9, Kansas City, $64.80 ton.

Omaha.—Cottonseed meal rules about steady. On June 9, the quotation was $66.10 ton for 43 per cent protein. Trading is very light.

Atlanta.—Demand for cottonseed meal and similar products continues very slow, due to the unusually high prices, relatively few orders reported, and practically all of them for immediate wants, with quick delivery asked. Prices are unchanged. For 7 per cent meal Atlanta and near-by mills are asking $53 ton, f.o.b., Atlanta, with other Georgia mills getting $51@52. There is no 8 per cent meal on the market. Cottonseed cake is about $51@52; cottonseed hulls, sacked $21@22, bulk $18@19.50.

Chicago.—Cottonseed meal is slightly easier, and demand rather quiet. On June 9 it was quoted at $67.50 ton, Chicago.

Boston.—Demand for cottonseed meal is quiet, with not much offering. Shippers are quoting meal at $57.50@71 ton, according to grade and route, but there is little inquiry.

Milwaukee.—Cottonseed meal prices are still holding firm and unchanged, with both demand and output limited. Quotation, June 9, f.o.b., Milwaukee, $56@68 ton.

Buffalo.—Cottonseed meal continues firm. There is little demand, due to the inactivity of dairy feeds. Prices unchanged. Quotations, June 9: 43 per cent, $70 ton; 41 per cent, $67; 36 per cent, $52.50.

DRIED BUTTERMILK

Kansas City.—Quotations on dried buttermilk are unchanged to slightly firmer. Prices, June 9, Kansas City: car lots, 6½c lb; l.c.l., 7c.

Chicago.—Demand for dried buttermilk slowed up early last week, but later some fairly good sales were made. Supplies are plentiful. On June 9 it was quoted at 6½@7½c lb, car lots, and 7½@8c, l.c.l., Chicago.

St. Paul.—Dried buttermilk is unchanged from a week ago in demand and price. Overproduction is affecting the situation. The mixed feed trade is well stocked. The quotation is 6½@7c lb.

GLUTEN MEAL

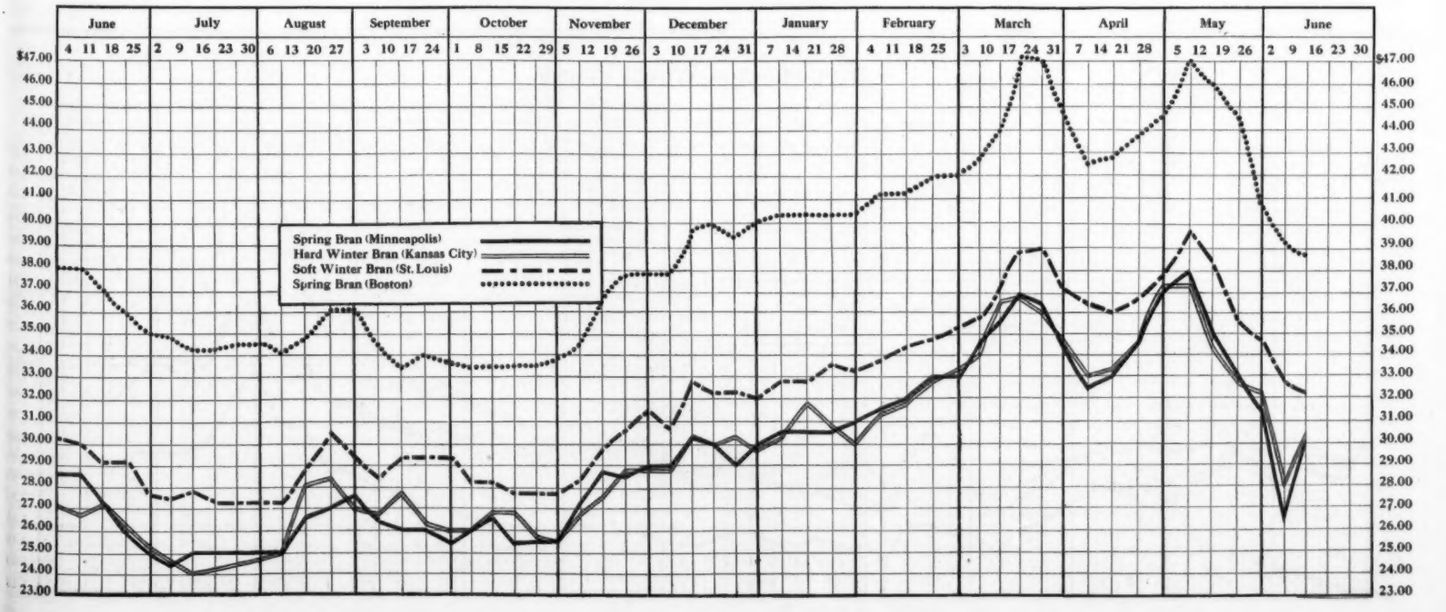
Chicago.—Gluten feed was quoted nominally, June 9, at $36 ton, bulk, Chicago, with resellers asking $2 more. Demand is not active, and supplies are light.

Milwaukee.—August shipments of gluten feed are 50c over those for June and July. Demand is good, and production is light. There are good prospects for the future, and it gained 50c ton over the previous week. Quotations, June 9, f.o.b., Milwaukee: gluten feed, $39.20 ton; gluten meal, $60.70.

Buffalo.—Near-by gluten feed was offered by resellers last week at $1@2 premium over mills, June shipment. Gluten mills are now offering for August and September at 50c ton premium for August and $1 for September, being entirely sold up on June and July production.

Baltimore.—Gluten feed was higher under large sales for September shipment at $45.60 ton in 100-lb sacks. Most

Range of Bran Prices



offerings were withdrawn from the market at the close. Gluten meal also was firmer, and well sold up at $67.60 in 100-lb sacks for September shipment, with offerings at the close limited.

Philadelphia.—Gluten meal is quiet and easy, with but little being offered. Quotations, June 9, $42.10 ton in bulk and $42.80 in 100-lb sacks.

Boston.—Shippers last week offered gluten meal at $67.60 ton, July shipment, in 100-lb sacks, Boston points, but demand was slow.

BREWERS' DRIED GRAINS

Chicago.—Brewers' dried grains are firm, and offerings light. Demand is not active. Quotations, June 9, $33.50@34 ton, Chicago.

Milwaukee.—Brewers' dried grains remained unchanged last week, due to the fact that there was a limited production. There was little trading done, and demand was slow. Quotation, June 9, f.o.b., Milwaukee, $33@34 ton.

HOMINY FEED

Kansas City.—Fair inquiry and moderate supplies of hominy feed hold prices steady, sales having been made last week at $39 ton.

Memphis.—Buyers do not want much hominy feed, yet there is no difficulty in disposing of all brokers have to offer, and local mills say they sell it as fast as turned out. On June 9 white was quoted at $43 ton and yellow at $44, while corn bran was slightly firmer, at $40 or above.

Omaha.—The hominy feed market holds relatively firm, with demand fairly good.

Nashville.—There was some easier tone to hominy feed last week. Demand was moderate, on account of pasturage being good. Some car lot business was moving. On June 9 it was quoted at $43 @45 ton.

Milwaukee.—Hominy feed remained unchanged last week. Demand was only fair. Quotation, June 9, f.o.b., Milwaukee, $40@41 ton.

Buffalo.—Shippers were looking for directions on white hominy last week, and were willing to discount the market $1. Yellow continues tight, with few offerings. There is fair inquiry at a good premium over white. Quotations, June 9: white hominy, $44 ton; yellow, $45.50.

Baltimore.—Hominy or yellow corn meal feed was firmer and in good demand last week, closing strong at $45 ton in 100-lb sacks, for both prompt and deferred shipment.

Philadelphia.—Hominy feed is weaker, with trade quiet and offerings ample. Quotation, June 9, in 100-lb sacks, $45.50 ton.

Boston.—Demand for hominy feed was slow last week, with prices a shade lower. On June 9 shippers quoted $47 ton, in 100-lb sacks, Boston points, prompt shipment, but the market closed easier.

Chicago.—Hominy feeds are in slow request, both yellow and white. Offerings are light, especially of yellow. On June 9 they were quoted at $42.50@43 ton, Chicago.

FLAXSEED AND ITS PRODUCTS

Minneapolis.—Linseed meal prices have advanced about $2 since a week ago. The market, however, is rather quiet, inquiry having dropped off, particularly on June 11 and 12. Shipping directions are fair. Meal for June shipment is offered at $52.50 ton. The export market is likewise somewhat inactive, with the price unchanged from a week ago. Linseed cake is priced at $46 ton, f.a.s., New York.

Daily closing prices per bushel of No. 1 flaxseed in Minneapolis and Duluth:

	Minneapolis		Duluth		
	Track	To arr.	Track	July	Sept.
June 5	$2.35½	2.32	2.37½	2.34½	2.30½
June 6	2.37⅝	2.35¼	2.40	2.37	2.33
June 7	2.36¼	2.33⅝	2.38¼	2.35¼	2.32½
June 8	2.37⅝	2.35¼	2.39½	2.36½	2.34⅜
June 9	2.39½	2.37	2.40½	2.37½	2.35½
June 11	2.38¾	2.35¾	2.40½	2.37½	2.36

Receipts and shipments of flaxseed at Minneapolis and Duluth, Sept. 1, 1927, to June 9, 1928, compared with the corresponding period of the previous year, in bushels (000's omitted):

	Receipts		Shipments	
	1927-28	1926-27	1927-28	1926-27
Minneapolis	12,352	7,882	8,139	2,021
Duluth	7,630	7,632	8,416	5,849
Totals	19,982	15,514	16,555	7,870

Duluth.—Futures were carried up 3¾c on a buying wave. Later the market turned easier. Catching of stop loss orders during the liquidation period tumbled prices sharply, July recording 6⅛c and September 5c from early high. Apparently oversold, the market made quick response to buying orders and reacted almost to the extent of the slump. Final firmness was attributed to a reflection of the strength shown by wheat. July, following all the ups and downs on the week, stood at a net 1¼c advance; September, 3¼c. Good demand for the cash article kept the supply readily cleaned up at all times. No. 1 spot was quoted at 1c under to 4c over the July. Stocks are low, only 267,000 bus.

Chicago.—Linseed meal is up a little, and demand has improved. It was quoted, June 9, at $53.50@54 ton, Chicago.

Omaha.—Linseed meal is lower, with demand light. The greatest buying is coming from mixers. On June 9 34 per cent protein was offered at $56.10 ton.

Winnipeg.—The quiet season is now on for linseed cake and meal, but as mills are low in stocks the market is not depressed. Quotations, June 9: oil cake, in bags, $48 ton, and meal $50. Crushers have not displayed any interest in flaxseed futures beyond spreading operations between the various options locally and between here and Duluth. No. 1 northwestern closed June 9 at $1.99½ bu, basis in store Fort William or Port Arthur.

Toronto.—There is some demand for linseed meal, but the movement is not heavy. Prices are unchanged. On June 9 it was quoted at $55 ton, in secondhand bags, f.o.b., mill points.

Pittsburgh.—Little business was transacted in linseed meal last week. Prices were higher and firm, and offerings were rather free. Small lot buyers were rather numerous. Quotation, June 9, $56.70 ton.

Kansas City.—Better inquiry exists here for linseed meal, and prices in Kansas City, June 9, were higher at $56.80 ton. Some resellers are below this basis.

Boston.—There was very little inquiry for linseed meal last week, the market ruling a shade lower. Shippers quoted at $58@58.50 ton, in 100-lb sacks, Boston points, but very little business was reported.

Milwaukee.—Linseed meal last week closed 50c@$1 ton up. Demand is quiet, but there are some good inquiries in the market. Quotation, June 9, f.o.b., Milwaukee, $53@54 ton.

Buffalo.—Linseed meal prices were cut $1 last week, the result of a scattered demand. On June 9 crushers freely offered 32 per cent at $51 ton and 34 per cent at $52, prompt shipment.

RYE PRODUCTS

Milwaukee.—Improved purchases of rye flour are being made. It seems that buyers are coming around to the viewpoint that domestic stocks are becoming too much reduced for comfort, and are starting to stock up to some extent. Prices held firm and unchanged last week, with pure dark up 15@25c. Quotations, June 9: fancy white patents $7.25 @7.40 bbl, light $6.90@7.05, medium $6.60@6.75, pure dark $4.85@5, and rye meal $5.75@5.90.

Minneapolis.—Local rye mills still complain of dullness. Those that carry warehouse stocks in eastern markets are busy keeping them intact, but they say they are doing practically no business in carload lots or more. Present high levels are keeping consumers from anticipating their needs. Pure white rye flour is held at $7.15@7.20 bbl, in 98-lb cottons, f.o.b., Minneapolis, pure medium $6.45@6.55 and pure dark $4.50@4.75.

Four northwestern rye mills last week made 5,680 bbls flour, compared with 7,982, made by five mills, in the previous week.

Chicago.—A little less than car lot business in rye flour is being done daily, but larger orders are unheard of or widely scattered. Shipping directions are fair. The local output totaled 2,000 bbls last week, against 1,700 in the previous one. White was quoted, June 9, at $6.80@7.20 bbl, jute, medium $6.50@6.80, and dark $4.80@4.75.

Duluth.—The mill reported only a few scattered offers for rye flour last week. Car lot buyers were not in evidence. Quotations, f.o.b., mill, June 9, in 98-lb cottons: pure white, $7.25 bbl; No. 2 straight, $6.60; No. 3 dark, $4.30; No. 5 blend, $6.85; No. 8 rye, $6.

New York.—There was no special feature to rye flour last week. Buyers' ideas were below those of mills, declining on the break faster than the grain. June 9, white patent, in jutes, was quoted at $7.70@8 bbl.

Indianapolis.—Rye flour was slightly higher last week, with prospective buyers very cautious. Quotations, June 9: white, $7@7.50 bbl, jute; medium, $6.50 @7; dark, $4.50@5.

Boston.—A quiet demand prevailed for rye flour last week, with the market unsettled. Rye meal and pure dark rye were dull, with prices higher. Quotations, June 9: choice white patent flour $7.95@8.05 bbl, standard patent $7.60@7.85, medium light straights $7.30@7.45, medium dark straights $6.80@6.95, rye meal $6.35@6.50 and pure dark rye $5.65 @5.80, all in sacks.

Pittsburgh.—Sales of rye flour were rather light last week, buyers not being inclined to pay the prices. What sales were made were in small lots. Larger consumers did not appear interested. Quotations, June 9: pure white $7.25@7.75 bbl, medium $6.25@6.75 and dark $4.75@5.25, cotton 98's, Pittsburgh.

Baltimore.—Rye flour last week did not fluctuate as did the grain, for when the price gets above that of clear flour, demand generally ends. Top patent was offered at $7.60, cotton, on June 8, but failed to go. Quotations, June 9, in 98-lb cottons: pure top white patent $7.50 @7.75 bbl, straight $6.35@6.60 and dark $4.85@5.10.

Philadelphia.—Rye flour sells slowly and the market rules weak and lower. Quotations, June 9, in 140-lb jute sacks, were $7.60@7.85 bbl for white, $6.50@7 for medium and $5@5.50 for dark.

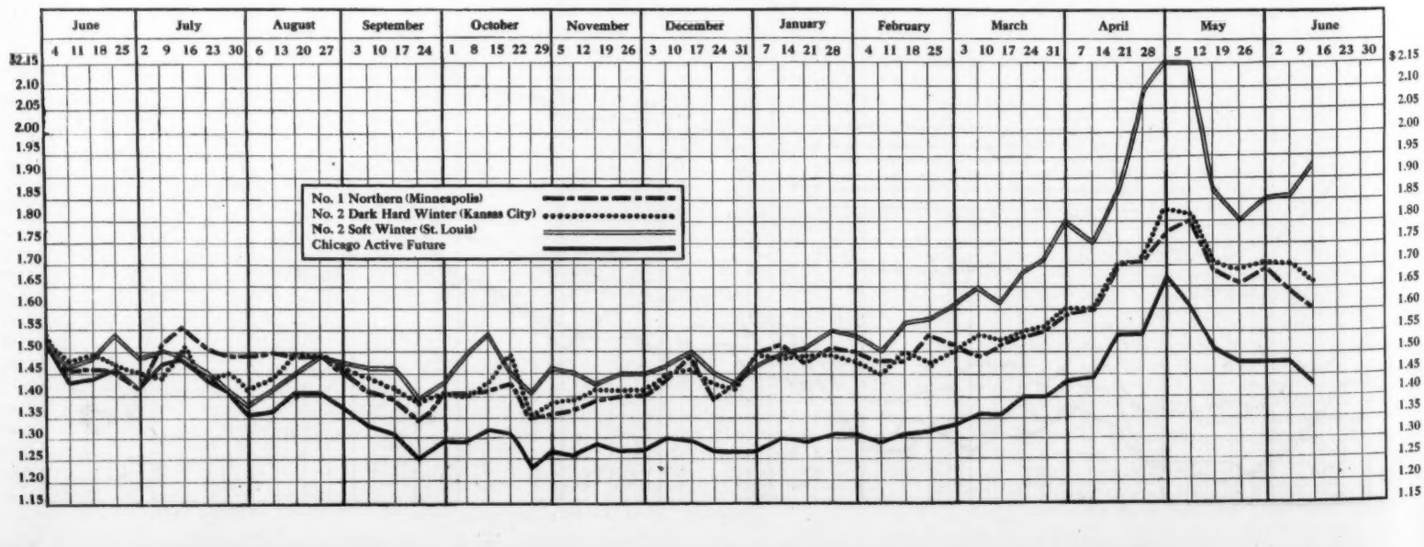
Buffalo.—Rye flour prices dropped 10 @15c last week, but there was little business.

St. Louis.—Rye flour, on June 9, was quoted as follows, car lots, in jute: fancy white patent $7.15 bbl, straights $6.75, pure dark $5.75 and extra heavy dark $5.65; rye meal, $5.65.

REGROUND OAT FEED

Chicago.—Offerings of reground oat feed are limited, and demand rather quiet. It was quoted, June 9, at $30 ton, Chicago.

Movement of Wheat Prices



THE GRAIN MARKET

CASH WHEAT

Chicago.—There was an increased basis for cash wheat last week. A few cars of soft were received, and a sale was made at 30c over July. Local and outside mills were in the market in a fairly big way, taking hard winters and springs out of store. Some local handlers say that many mills are taking wheat supplies only as needed. They make purchases, but only order the wheat out as needed, and then want shipments in a hurry. Many of these mills have large capacity. Trading basis, June 9: No. 1 red 30@33c over July, No. 2 red 25@30c over, No. 3 red 10@20c over; No. 1 hard 5½@7½c over, No. 2 hard 4@5c over, No. 3 hard 2@3c over; No. 1 dark northern 2@3c over, No. 2 dark northern 1@2c over, No. 1 northern July price to 2c over. Sales made late in the week: No. 1 hard, $1.47 bu; No. 2 hard, $1.46½.

Minneapolis.—A steady, consumptive demand from local milling interests is reported for all offerings of 11.50 to 12.50 per cent protein wheat, premiums holding at former levels. In the higher percentages of protein wheat, however, less interest is shown, and premiums are weaker as the movement of new winter wheat crop approaches. Current quotations: 15 per cent protein 41@46c bu over the July option; 14 per cent, 33@38c over; 13 per cent, 21@24c over; 12½ per cent, 12@15c over; 12 per cent, 9@10c over; 11.60@11.90 per cent, 4@7c over; 11 per cent, 1@4c over.

The range of No. 1 amber wheat at Minneapolis for the week ending June 9 was $1.24½@1.43½, and of No. 1 durum $1.23½@1.35½. No. 1 amber closed on June 12 at $1.22⅝@1.36⅝, and No. 1 durum at $1.21⅝@1.28⅝.

The range of No. 1 dark wheat at Minneapolis for the week ending June 9 was $1.40¾@1.81¾, and of No. 1 northern $1.39¾@1.81¾. No. 1 dark closed June 12 at $1.38⅞@1.73⅞, and No. 1 northern $1.37⅞@1.73⅞.

Based on the close, June 12, the minimum prices paid to farmers at country points in northern Minnesota for wheat were: for No. 1 dark $1.23 bu, No. 1 northern $1.21; in southern Minnesota, No. 1 dark $1.27, No. 1 northern $1.25; in central North Dakota, No. 1 dark $1.21, No. 1 northern $1.19; in central Montana, No. 1 dark $1.10, No. 1 northern $1.08.

Receipts of wheat in Minneapolis and Duluth from Sept. 1, 1927, to June 9, 1928, compared with the corresponding period of previous years, in bushels (000's omitted):

	1927-28	1926-27	1925-26	1924-25
Minneapolis	104,361	66,549	90,489	88,755
Duluth	108,756	41,470	63,773	102,094
Totals	213,117	108,019	154,262	190,849

Winnipeg.—Low grade wheat is in good demand, but stocks are depleted and round lots are difficult to locate. Importers have shown a preference for Nos. 4, 5 and 6 this past season, to the detriment of No. 3 northern, which while available in large quantities is apparently not wanted so long as anything else can be procured. Export business is very disappointing, and stocks at the lakehead ports remain heavy, resulting in much tonnage lying idle and quoting unusually low rates. The Canadian pool is reported not to be offering any cash wheat abroad, selling only when buyers bid for it. Fort William price for No. 1 northern on June 9 was $1.48¼ bu.

Duluth.—Drouth apprehension that was becoming serious and a bullish influence in wheat was broken by the late pretty general rains over the Northwest and changed conditions quite noticeably, helped by the bearish construction of the government report as regards the increased estimate on winter wheat production. Wheat receipts have declined, and cash offerings are lighter. Shipping inquiry continues slack. There was a fair demand for all offerings, both spring and durum. High protein seemed a little easier to sell, with the top premium on the dark northern and northern down 5c. The durum basis remained unchanged. Winter wheat is in demand, but business is limited by meager receipts. Close, June 9: No. 1 dark, $1.43¼@1.82¼ bu; No. 2 dark, $1.42¼@1.79¼; No. 3 dark, $1.39¼@1.76¼; No. 1 dark Montana, $1.40⅞@1.62⅞; No. 2 hard winter, $1.39⅞@1.50⅞.

Daily closing prices of durum wheat, in cents, per bushel:

	Amber durum		Durum	
June	No. 1	No. 2	No. 1	No. 2
2....	136⅝@154⅝	135⅝@154⅝	149⅝	149⅝
4....	136½@154½	135½@154½	149½	149½
5....	131½@149½	130½@149½	144½	144½
6....	136¼@154¼	135¼@154¼	149¼	149¼
7....	131½@149½	130½@149½	144½	144½
8....	132½@150½	131½@150½	145½	145½
9....	133¼@151¼	132¼@151¼	146¼	146¼

Kansas City.—Trading in cash wheat was quiet last week, with offerings small. Demand was fairly good from mills for choice, high protein grain, but little of this was available. Prices declined slightly, but the premium basis is about unchanged. Quotations, June 9: hard wheat, No. 1 $1.45@1.88 bu, No. 2 $1.44@1.87, No. 3 $1.40@1.86, No. 4 $1.37@1.77; soft wheat, No. 1 $1.60@1.66, No. 2 $1.58@1.64, No. 3 $1.48@1.55, No. 4 $1.43@1.50.

St. Louis.—Shippers had a few orders for good, soft milling wheat last week, but there was very little demand for common qualities or mixed wheats. Western varieties were dull. Track offerings of hard wheat were very light. A quiet milling inquiry for low protein and soft blending types was reported. Receipts were 96 cars, against 87 in the previous week. Cash prices, June 9: No. 2 red $1.93 bu, No. 3 red $1.90; No. 1 hard $1.53½@1.54, No. 2 hard $1.53.

Indianapolis.—Wheat last week was very dull at the close, and prices were off 2c. Millers are not actively in the market, and are manufacturing only what there is a good chance of disposing of. Quotations, June 9: No. 2 red, $1.67@1.71 bu; No. 2 hard, $1.37@1.41.

Toledo.—Wheat receipts are now very light. The bid for No. 2 red, Toledo rate points, on June 8, was $1.71½ bu, 30c over the close of Chicago July the same day.

Milwaukee.—Cash wheat was down at the close, a loss of 4c being registered by mixed, durum and hard winter, and 2c by red winter. There was not much trading during the week, but a good demand prevailed for soft wheat. Offerings were very light. Quotations, June 9: No. 1 hard winter, $1.49@1.51 bu; No. 1 red winter, $1.68@1.71; No. 1 mixed, $1.45@1.46; No. 1 durum, $1.31@1.32.

Atlanta.—Wheat movement is unusually quiet, due to the fact that soft wheat flour mills are only operating at about one half capacity, but as indications are that production will be considerably larger when the new crop is ready, there is expected to be a larger movement within the next few weeks. Prices lately have been on a down grade, but still are unusually high for this period.

Nashville.—Demand last week was fairly good for red wheat of suitable milling grade, with moderate offering. The market was somewhat irregular, with considerable range in sales. No. 2 red, with bill, June 9, was quoted about $2@2.05 bu at Nashville.

Seattle.—The cash wheat market was inactive last week, both in the interior and at tidewater. Demand for soft winter wheat from the Central West continued good, but sales were comparatively light, as the varieties wanted are pretty well cleaned up and holders were not free sellers. Quotations, No. 1, sacked, coast, 30-day shipment, June 8: soft and western white, $1.43 bu; hard winter, northern spring and western red, $1.34; Big Bend blue-stem, $1.50; Big Bend dark northern spring, 13 per cent protein, $1.51; Big Bend dark hard winter, 13 per cent protein, $1.50.

Portland.—There was a little buying of old wheat late last week. Demand continued for the new crop, but there was practically no selling by farmers. Cash quotations at the Merchants' Exchange, June 9: Big Bend blue-stem, $1.49 bu; soft white and western white, $1.42; hard winter, northern spring and western red, $1.33.

Ogden.—Wheat prices were unchanged last week. Reports of the Grain Exchange show a continued decline in receipts, which averaged under 10 cars daily. Wheat prices, June 9: No. 2 dark hard $1.46@1.62 bu, No. 2 hard winter $1.26@1.46, No. 2 soft white $1.52@1.67, and No. 2 northern spring $1.75@1.84, milling-in-transit billing, freight paid to Ogden.

San Francisco.—Demand for wheat is slow, and mills are not buying until new crop arrivals are more general. Quotations, June 8, basis 100 lbs, bulk, delivered, San Francisco: feed, $2.20; No. 1 hard white, $2.25.

Buffalo.—The activity the latter part of last week stimulated demand for milling spring wheat. Limits were firmer and higher at the close. On June 9 dark No. 1 northern 12 per cent protein was offered at $1.63¼ bu, c.i.f., Buffalo, and 12½ per cent protein at $1.55¼, c.i.f., Buffalo. Car receipts for the week were limited to four.

Baltimore.—Cash wheat on June 9 was unchanged to 3¼c lower, compared with the previous week, or 43@46¼c down from the late top, with export demand nil and stocks, over twice as much Canadian as domestic, showing a decrease of 21,000 bus. Closing prices, June 9: spot No. 2 red winter, domestic, $1.71 bu; spot No. 2 red winter, garlicky, domestic, $1.67¾; July, $1.51 asked. The difference between spot No. 2 red winter, garlicky, domestic, and July is now only 16¾c, as against 50c earlier. The condition of the growing crop in this section is still regarded as fine. Exports were 89,918 bus, all Canadian. Receipts of Canadian wheat last week, 75,077 bus; stock, 424,563.

New York.—A bad break early last week in wheat prices was followed by a slight rally, though weather conditions again brought prices down. Early in the week there were large export sales, which fell off with the holiday on the Continent toward the end. Cash grain quotations, June 9: No. 2 red, c.i.f., domestic, $1.79½ bu; No. 1 dark spring, c.i.f., domestic, $1.59; No. 2 hard winter, f.o.b., export, $1.60; No. 1 northern Manitoba (in bond), f.o.b., export, $1.65¾; No. 2 amber durum, c.i.f., domestic, $1.45½.

Toronto.—Now that seeding is over in Ontario, farmers are delivering a little wheat and odd car lots are obtainable at country points for domestic milling purposes, but there is no prospect of any quantity coming into the market until the new crop is ready. Any wheat that mills are buying is mostly to complete contracts for flour already on their books. Dealers are asking $1.60 bu for No. 2 red or white, in car lots, on track, at country points, while mills are paying $1.55@1.60 for wagon lots at their doors. Plenty of western spring is offering at Ontario milling points, but there is little demand, owing to the shrinkage in sales of flour. Compared with a week ago, prices are about 3c lower. Quotations, June 9: No. 2 northern $1.46¼ bu, track, bay ports; No. 3, $1.37½.

COARSE GRAINS

Minneapolis.—Range of coarse grains for the week ending June 9, and the closing prices on June 11, respectively: No. 3 white oats, 61¼@64⅝c, 63⅜@64⅞c; No. 2 rye, $1.23⅝@1.38¾, $1.25½@1.28½; barley, 83@95c, 84@95c.

Duluth.—Receipts of oats last week were hardly sufficient to make a market. Most of the limited offerings were of low grade. Spot No. 3 white remain unchanged at 2c under to 7c over Chicago July. Barley prices showed no change. The limited receipts were readily taken. Eastern inquiry slow. Malting closed at 88@92c bu; medium, 85@87c; lower, 83@84c. Rye cash buyers absorbed car offerings at the going basis. Stocks of the entire coarse grain list are down to a very low level, and any sign of active shipping would clean the total accumulations out quickly.

Milwaukee.—Rye was 1c lower last week, but barley gained 2c and oats 1c. A good demand prevailed, but receipts of all coarse grains were light. Old and new barley is being taken readily by the trade. Quotations, June 9: No. 2 rye, $1.33¾@1.34¼ bu; No. 3 white oats, 64½@71½c; malting barley, 97c@$1.07.

Indianapolis.—A better demand for oats last week caused an advance of 2c. Quotations, June 9: No. 2 white, 65@67c bu; No. 3 white, 63½@66c.

Chicago.—Only a few cars of rye were received last week, and they were easily disposed of. No. 2 was quoted around $1.31@1.32 bu. Cash oats continued strong, and a good demand prevailed for the light offerings. No. 2 white were quoted at 71½@73c bu, No. 3 white 65½@72c, and No. 4 white 69c.

Pittsburgh.—Oats prices last week were practically unchanged and firm. The better grades were in demand. Offerings were limited. Quotations, June 9: No. 2 white, 75@75½c bu; No. 3 white, 73@73½c.

Buffalo.—Oats have turned very strong again. Premiums are at the highest point on the crop. No relief is expected for another six weeks, when the new crop will be harvested. On June 9 No. 2 white were offered at 77½@79½c bu, and No. 3 white at 74½@76½c.

Baltimore.—Oats prices, June 9: No. 2 white, domestic, 77@78c bu, as to weight; No. 3 white, domestic, 1@2c less.

Philadelphia.—Oats were unsettled and irregular last week, but the market closed firm at a net advance of ½c. Supplies are small, while demand is moderate. Quotations, June 9: No. 2 white, 80@83c bu; No. 3 white, 77@79c.

Boston.—A quiet demand for oats prevailed last week. Prices, June 9: fancy 40@42-lb, shipment all-rail, 87@89c bu; regular 38@40-lb, 84@86c; regular 36@38-lb, 81@82c; regular 34@36-lb, 80@81c; lake-and-rail, regular 36@38-lb, 80@82c.

San Francisco.—New crop barley being received continues disappointing in quality, on account of which exporters have had to change samples in Europe. Warm weather has injured the crop considerably. Numerous grain fires throughout the state have destroyed a lot of quality barley, the aggregate of possibly 500,000 bags. Quotations, June 8, sacked: feed, $1.75 per 100 lbs; grading, $1.80; shipping (Marriott), $1.90; shipping (common), $1.95; choice, $2.20. Oats are steady, with a good demand for choice lots. Quotations, sacked: feed, $2.05 per 100 lbs; seed, $2.20@2.30.

Toronto.—Both Ontario and western oats declined about 4c last week. Business improved slightly with the reduction. Sample wheat is in fair demand. Quotations, June 9: Ontario oats 66c bu, No. 3 barley 93c, f.o.b., shipping points; No. 3 Canadian western oats 71⅝c bu, track, bay ports, and tough No. 1 feed 69c; sample wheat $38.50 ton, c.i.f., bay ports.

Winnipeg.—Spasmodic export business in oats, barley and rye was seen last week. Germany and France were credited with fairly good purchases of oats, and the former country also took some low grade rye. Barley has been in sufficient demand to maintain a steady range of prices, and some fair lots of this grain have been sold for August-September shipment, a factor in the high prices ruling in the deferred months. Quotations, June 9: No. 2 western Canada oats, 70¼c bu; barley, 91⅝c; rye, $1.23.

VICTORIA'S WHEAT HARVEST

MELBOURNE, VICTORIA.—The government statistician has made available the final figures relating to the 1927-28 wheat harvest in Victoria. These show that the total production was 21,160,814 bus, representing an average of 8.54 bus acre, compared with 46,878,265 and 16.08, respectively, for the previous season. Victoria's record harvest was in 1915-16, when the aggregate outturn was 58,521,706 bus.

CURRENT FLOUR, FEED AND GRAIN STATISTICS

Grain Futures—Closing Prices

Closing prices of grain futures at leading option markets, in cents per bushel:

WHEAT

June	Chicago July	Chicago Sept.	Minneapolis July	Minneapolis Sept.
5	143⅝	145⅛	140⅝	141⅝
6	145⅛	146⅞	143¼	143⅞
7	142⅛	144	140¼	140⅞
8	141⅝	142⅞	139⅞	140⅛
9	143	144⅝	142⅝	142½
11	142	143½	140⅝	140½

June	Kansas City July	Kansas City Sept.	St. Louis red July	St. Louis red Sept.
5	135¼	136⅛	.....	.....
6	136⅞	138⅛	.....	.....
7	134⅜	136⅝	.....	165
8	133⅝	134⅝	.....	.....
9	135	136	.....	165½
11	134	135	.....	163¾

	Seattle July	Seattle Sept.		Duluth durum July	Duluth durum Sept.
June 5	134	133	June 8	133½	132½
June 6	135	133⅞	June 9	135½	134⅛
June 7	133⅝	132⅝	June 11	135⅝	133⅜

June	Winnipeg July	Winnipeg Oct.	Duluth durum July	Duluth durum Sept.
5	142	141	129½	129½
6	144¼	142⅝	134¼	133⅝
7	142⅜	140¼	129½	129
8	141½	139½	130½	129½
9	143¼	140⅜	131¼	130⅜
11	141⅜	139⅞	129⅞	128⅝

June	Liverpool July	Liverpool Oct.	Buenos Aires June	Buenos Aires July
5	154⅞	159⅞	134⅞	136½
6	154⅞	159⅝	134⅝	137
7	152	156⅝	.....	.....
8	151¼	156½	132	135⅝
9	154	159¼	.....	.....
11	151⅞	157½	.....	.....

CORN

June	Chicago July	Chicago Sept.	Kansas City July	Kansas City Sept.
5	104⅝	103⅝	98¼	98¼
6	107	105¼	101⅝	101⅛
7	106	103½	99⅞	98⅞
8	103⅞	102¼	98⅝	97⅝
9	103½	101⅞	97⅞	96⅝
11	103⅝	102⅜	98⅜	97½

OATS

June	Chicago July	Chicago Sept.	Minneapolis July	Minneapolis Sept.
5	55¼	....	55⅜	42⅜
6	55⅝	46⅜	57¼	44¼
7	54½	46¼	56½	42½
8	54¼	47⅝	56¼	43¼
9	54⅜	46⅛	56⅝	43⅝
11	54¼	46¼	56⅜	43⅜

RYE

June	Chicago July	Chicago Sept.	Minneapolis July	Minneapolis Sept.
5	125⅜	119⅛	121¼	116
6	129⅜	123⅜	124⅝	117¾
7	127¼	121¼	121⅝	114⅜
8	126⅜	120⅜	121¾	114¼
9	128⅜	123¼	124	117⅞
11	128	122⅝	123½	118

FLAXSEED

June	Minneapolis July	Minneapolis Sept.	Duluth July	Duluth Sept.
5	234	230	234½	230½
6	236¼	232½	237	233
7	234⅝	232	235¼	232½
8	236¼	234	236½	234⅝
9	238	235⅝	237½	235½
11	236⅝	234¼	237½	236

Oats—Receipts, Shipments and Stocks

Receipts, shipments and stocks of oats at the principal distributing centers for the week ending June 9, in bushels (000's omitted), with comparisons:

	Receipts 1928	Receipts 1927	Shipments 1928	Shipments 1927	Stocks 1928	Stocks 1927
Minneapolis	265	227	589	625	724	5,349
Kan. City	52	44	20	31	1	290
Chicago	582	748	641	563	...	...
New York	66	92	60	..	250	754
Philadelphia	4	25	15	25	43	105
Boston	28	16	..	..	16	19
Baltimore	7	40	..	..	32	93
Milwaukee	76	173	154	93	...	...
Duluth-Sup.	45	2	..	13	70	3,216
Toledo	20	74	9	221	...	...
Buffalo	99	187	75	135	1,226	3,222

Exports by Customs Districts

Exports of wheat (bus) and wheat flour (bbls) from the United States by customs districts in March and April, 1928, as reported by the Department of Commerce (000's omitted):

	March Wheat	March Flour	April Wheat	April Flour
Massachusetts	..	3	..	3
Buffalo	..	1	..	1
New York	284	435	97	381
Philadelphia	171	7	10	5
Maryland	63	7	35	14
Virginia	..	10	..	6
Florida	..	2	..	2
Mobile	..	10	..	10
New Orleans	103	134	305	127
Sabine	..	3	..	..
Galveston	80	58	85	90
San Antonio	63	1	42	3
El Paso	..	1	..	1
Arizona	..	1	..	1
San Francisco	37	40	18	26
Oregon	1,495	120	1,548	69
Washington	439	176	581	355
Michigan	4	2	2	1
Porto Rico	..	3	..	1
Montana and Idaho	1	1	..	1
Totals	2,740	1,011	2,723	1,097

United States—Grain Stocks

Commercial stocks of grain in store and afloat at the principal markets of the United States at the close of the week ending June 9, 1928, and June 11, 1927, as reported to the United States Bureau of Agricultural Economics, in bushels (000's omitted):

	American June 9 1928	American June 11 1927	Canadian in bond June 9 1928	Canadian in bond June 11 1927
Wheat	48,327	26,411	11,333	11,724
Rye	2,613	2,139	348	529
Corn	25,231	33,754	...	...
Barley	2,500	1,660	431	466
Oats	6,254	20,519	134	206
Flaxseed	883	1,461	...	21

Stocks of United States grain in store in Canadian markets on June 9 (figures for the corresponding date of last year shown in parentheses): wheat, 1,796,000 (1,149,000); rye, 707,000 (1,054,000); corn, 1,891,000 (1,487,000); barley, 1,000; oats, 173,000 (1,474,000).

United States Visible Grain Supply

Visible supply of grain in the United States, as compiled by the secretary of the Chicago Board of Trade, in bushels (000's omitted):

	June 9 Wheat	Corn	Oats	Rye	Brly
Baltimore	174	108	27	3	30
Boston	...	...	6	1	...
Buffalo	3,617	1,781	1,109	974	576
Afloat	55	255	...	51	50
Chicago	5,563	9,672	3,299	542	107
Detroit	216	68	80	15	3
Duluth	14,543	22	70	551	104
Galveston	425	1	...	8	...
Indianapolis	133	1,360	16	...	...
Kan. City	3,561	3,446	1	102	1
Milwaukee	11	1,241	167	4	16
Mpls.	13,571	664	724	161	202
N. Orleans	237	160	54	5	...
New York	109	6	214	22	22
Fort Worth	587	164	37	3	10
Omaha	678	2,042	73	1	30
Peoria	1	109	36	...	...
Philadelphia	103	43	42	151	1
Sioux City	113	152	31	...	8
St. Joseph	158	537	12	...	...
St. Louis	697	1,071	74	2	59
Toledo	1,197	33	35	5	5
Wichita	908	4	...	...	...
Canals	111	43	...	15	37
Lakes	321	255	30	202	55
Totals	47,089	23,237	6,137	2,818	1,316
Last year	24,721	32,109	20,343	2,380	765

CHANGES FOR THE WEEK

Increases—Rye, 66,000 bus. Decreases—Wheat, 1,538,000 bus; oats, 949,000 bus; corn, 2,259,000 bus; barley, 98,000 bus.

Russell's Wheat Stocks and Movement

Russell's Commercial News estimates United States wheat stocks and movement as follows, in bushels (000's omitted):

Movement, July 1- May 26—	1927-28	1926-27	1925-26
Receipts from farms	720,000	*723,000	563,000
Exports	139,760	146,780	54,510
Imports	15,070	12,550	14,440
Stocks on May 26—			
At terminals	54,728	32,397	23,170
At country elevators, mills and in transit	96,882	85,173	51,360
Week's decrease	5,090	7,050	3,830

*Revised.

Imports of Canadian Wheat

The United States Department of Commerce reports imports of Canadian wheat at the principal northern border ports as follows:

Imports for consumption, duty paid, bus:

Week ending June 2	Week ending May 26	July 1, 1927, to June 2, 1928
30,000	.....	42,000

Imports into bonded mills for grinding into flour for export, bus:

Week ending June 2	Week ending May 26	July 1, 1927, to June 2, 1928
442,000	697,000	15,540,000

Millfeed—Receipts and Shipments

Receipts and shipments of millfeed at the principal distributing centers for the week ending June 9, in tons, with comparisons:

	Receipts 1928	Receipts 1927	Shipments 1928	Shipments 1927
Minneapolis	725	572	13,006	10,799
Kansas City	1,520	820	4,220	3,160
New York	2	4	...	...
Philadelphia	260	240	...	...
Boston	20	20	...	...
Baltimore	270	384	...	...
Milwaukee	1	1	2	2

Barley—Receipts, Shipments and Stocks

Receipts, shipments and stocks of barley at the principal distributing centers for the week ending June 9, in bushels (000's omitted), with comparisons:

	Receipts 1928	Receipts 1927	Shipments 1928	Shipments 1927	Stocks 1928	Stocks 1927
Minneapolis	214	235	315	107	202	153
Kansas City	9	6	8	1	..	103
Chicago	76	52	8	14	..	..
New York	458	169	430	73	167	617
Philadelphia	..	1	..	..	1	1
Boston	..	..	120	..	..	20
Baltimore	184	..	146	..	171	3
Milwaukee	139	131	37	18	..	..
Duluth-Sup.	210	36	202	67	103	89
Buffalo	12	..	444	70	780	328

Fort William and Port Arthur Stocks

Stocks of grain in store at above points on June 8, in bushels (000's omitted):

Elevator—	Wheat	Oats	Barley	Flax
Ogilvies	1,120	94	50	...
G. T. P.	4,743	165	109	59
Can. Gov't	2,085	24	20	629
Sask. Pool				
No. 4	4,537	83	67	299
No. 6	5,674	238	107	122
Private elevators	33,572	1,879	674	324
Totals	51,731	2,482	1,028	1,433
Year ago	22,461	1,561	582	2,024
Receipts	4,321	1,173	475	55
Lake shipments	4,388	1,736	932	114
Rail shipments	184	42	...	...

STOCKS BY GRADE (000'S OMITTED)

Wheat—	Bus	Wheat—	Bus
No. 1 northern	92	Durum	199
No. 2 northern	750	Kota	7
Dk. 1 and 2 nor	25	White spring	65
No. 3 northern	8,446	Winter	4
No. 4	619	Others	7,307
No. 5	323	Private	33,572
No. 6	243		
Feed	78	Total	51,731
Oats—	Bus	Oats—	Bus
No. 2 C. W.	59	Others	306
No. 3 C. W.	78	Private	1,879
Ex. 1 feed	10		
1 feed	129	Total	2,482
2 feed	21		

Rye—Receipts, Shipments and Stocks

Receipts, shipments and stocks of rye at the principal distributing centers for the week ending June 9, in bushels (000's omitted), with comparisons:

	Receipts 1928	Receipts 1927	Shipments 1928	Shipments 1927	Stocks 1928	Stocks 1927
Minneapolis	57	49	27	72	161	290
Kansas City	3	..	3	2	102	1
Chicago	23	27	..	25	...	...
New York	23	182	487	47	42	126
Philadelphia	2	..	..	1	151	9
Boston	..	..	34	..	1	3
Baltimore	..	..	..	5	3	17
Milwaukee	4	24	7	11	...	...
Duluth-Sup.	104	142	136	230	551	530
Buffalo	2	300	327	2,477	11,040	948

Corn—Receipts, Shipments and Stocks

Receipts, shipments and stocks of corn at the principal distributing centers as reported for the week ending June 9, in bushels (000's omitted), with comparisons:

	Receipts 1928	Receipts 1927	Shipments 1928	Shipments 1927	Stocks 1928	Stocks 1927
Minneapolis	180	1,018	179	241	664	411
Kan. City	285	873	876	236	3,525	370
Chicago	1,237	1,420	1,473	823	...	...
New York	9	6	..	..	6	115
Philadelphia	8	16	3	10	45	59
Boston	..	..	..	..	..	2
Baltimore	21	21	..	..	105	132
Milwaukee	491	278	326	76	...	...
Dul.-Sup.	..	5	..	4	22	1
Toledo	14	79	5	38	...	...
Buffalo	110	210	..	21	2,036	3,115

Wheat Flour—Receipts, Shipments, Stocks

Receipts, shipments and stocks of wheat flour in the principal distributing centers for the week ending June 9, in barrels (000's omitted), with comparisons:

	Receipts 1928	Receipts 1927	Shipments 1928	Shipments 1927	Stocks 1928	Stocks 1927
Minneapolis	3	3	215	199	..	..
Kansas City	17	13	148	166	..	..
Chicago	203	232	111	180	..	..
New York	213	160	102	50	338	297
Philadelphia	29	38	49	44	89	101
Boston	21	30	17	9	..	..
Baltimore	17	24	4	16	..	..
Milwaukee	53	41	1	7	..	..
Duluth-Sup.	101	100	124	105	166	119
*Nashville	..	..	..	..	29	48

*Figures for 10 days.

Weekly Grain Exports

Exports of grain from the United States, as reported by the Department of Commerce, in bushels in the case of grain and barrels in the case of flour:

	Week ending June 2, '28	Week ending June 4, '27	Week ending May 26, '28	July 1 to June 2, '28	July 1 to June 4, '27
Wheat to—					
Italy	.....	248,000	268,000	10,213,000	9,327,000
United Kingdom	37,000	156,000	45,000	35,622,000	37,506,000
Other Europe	471,000	495,000	972,000	44,397,000	60,812,000
Canada	.....	.....	.....	39,010,000	23,902,000
Other countries	9,000	40,000	99,000	11,038,000	18,183,000
Totals	517,000	939,000	1,384,000	140,280,000	149,730,000
Wheat flour, United States and Canada, in transit	*122,000	181,000	216,000	14,597,000	15,944,000
Barley	236,000	219,000	97,000	34,767,000	16,061,000
Corn	203,000	311,000	101,000	17,342,000	16,866,000
Oats	31,000	458,000	18,000	5,649,000	8,241,000
Rye	165,000	710,000	111,000	23,013,000	18,753,000

*Including via Pacific ports: wheat, 77,000 bus; flour, 10,700 bbls.

Bradstreet's Weekly Visible Grain Supply

Following are Bradstreet's returns of stocks of wheat held on June 2, in the United States, Canada and the United Kingdom, and the supply on passage for Europe; also the stocks of corn and of oats held in the United States and Canada, with comparisons, in bushels (000's omitted):

	Week ending June 2	Changes from previous week	Totals June 4 1927
Wheat—			
United States*	50,381	—2,101	28,862
United States†	2,079	—167	2,252
Canada	112,054	—1,122	56,797
Totals	164,514	—3,390	87,912
United Kingdom port stocks and floating supply (Broomhall)—			
Totals	‡64,900	—200	74,600
American and United Kingdom supply—			
Totals	229,414	—3,590	162,512
CORN—United States and Canada—			
Totals	27,554	—1,004	31,708
OATS—United States and Canada—			
Totals	17,015	+1,570	28,889

*East of Rocky Mountains. †West of Rocky Mountains. ‡Continent excluded.

Combined aggregate wheat visible supplies, as shown by Bradstreet, follow, in bushels:

1927—	United States East of Rockies	United States Pacific Coast	United States Totals
July 1	23,544,000	1,972,000	25,516,000
Aug. 1	36,104,000	1,429,000	37,533,000
Sept. 1	67,273,000	4,635,000	71,908,000
Oct. 1	84,630,000	4,125,000	88,755,000
Nov. 1	95,061,000	3,928,000	98,989,000
Dec. 1	96,463,000	3,546,000	100,013,000
1928—			
Jan. 1	90,506,000	3,830,000	94,336,000
Feb. 1	82,368,000	2,803,000	85,171,000
March 1	74,260,000	3,689,000	77,949,000
April 1	69,939,000	3,281,000	73,220,000
Week ending—			
May 5	61,390,000	2,345,000	63,735,000
May 12	59,358,000	2,313,000	61,671,000
May 19	55,916,000	2,175,000	58,091,000
May 26	52,482,000	2,246,000	54,728,000
June 2	50,381,000	2,079,000	52,460,000

1927—	Canada	Totals, U. S. and Canada both coasts	U. Kingdom and afloat*
July 1	49,247,000	74,763,000	60,800,000
Aug. 1	44,237,000	81,770,000	54,300,000
Sept. 1	28,364,000	100,172,000	54,000,000
Oct. 1	22,568,000	111,713,000	59,600,000
Nov. 1	85,436,000	185,425,000	65,000,000
Dec. 1	121,009,000	221,022,000	65,900,000
1928—			
Jan. 1	147,506,000	241,842,000	53,200,000
Feb. 1	152,560,000	237,731,000	65,300,000
March 1	152,760,000	230,709,000	77,600,000
April 1	143,919,000	217,139,000	77,500,000
Week ending—			
May 5	121,555,000	185,290,000	71,200,000
May 12	117,298,000	178,969,000	68,600,000
May 19	116,680,000	174,771,000	67,800,000
May 26	113,176,000	167,904,000	65,100,000
June 2	112,054,000	164,514,000	64,900,000

*Broomhall.

Total American, Canadian and British visible supply:

1927-28—	1928—
July 1 135,563,000	Mch. 1....308,309,000
Aug. 1 ...128,647,000	April 1....294,639,000
Sept. 1 ...154,172,000	Week ending—
Oct. 1 171,313,000	May 5....256,490,000
Nov. 1 250,425,000	May 12...247,569,000
Dec. 1 286,922,000	May 19...242,571,000
Jan. 1 295,042,000	May 26...233,004,000
Feb. 1 303,031,000	June 2....229,414,000

Wheat—Receipts, Shipments and Stocks

Receipts, shipments and stocks of wheat at the principal distributing centers, as reported for the week ending June 9, in bushels (000's omitted), with comparisons:

	Receipts 1928	Receipts 1927	Shipments 1928	Shipments 1927	Stocks 1928	Stocks 1927
Mpls.	947	1,152	881	799	13,571	6,707
Kan. City	358	611	350	993	3,704	3,453
Chicago	129	307	115	453	...	...
New York	1,111	999	1,278	817	1,507	3,167
Philadelphia	441	146	46	649	818	1,359
Boston	..	5	16	16	152	233
Baltimore	76	262	90	328	597	1,516
Milwaukee	17	78	13	8	...	...
Dul.-Sup.	1,149	533	752	742	14,543	3,153
Toledo	49	379	76	44	...	...
Buffalo	6	935	2,595	4,305	11,933	8,386

Russell's Flour Production and Movement

Russell's Commercial News estimates United States flour production and movement as follows, in barrels (000's omitted):

Production—	1927-28	1926-27	1925-26
Week ending May 26	2,186	2,306	2,108
Previous week	2,300	2,214	2,143
Production July 1- May 26	116,412	118,620	115,298
Imports—			
July 1-May 26	4	3	16
Exports—			
Week ending May 26	240	250	163
Previous week	160	250	169
July 1-May 26	12,000	12,300	8,842

Flaxseed—Receipts, Shipments and Stocks

Receipts, shipments and stocks of flaxseed at the principal distributing centers for the week ending June 9, in bushels (000's omitted), with comparisons:

	Receipts 1928	Receipts 1927	Shipments 1928	Shipments 1927	Stocks 1928	Stocks 1927
Minneapolis	96	65	57	3	588	516
Chicago	2	10	..	..	..	..
New York	28	26	..	..	..	..
Duluth-Sup.	*28	38	7	64	267	94

*Mill receipts not included.

CORN AND ITS PRODUCTS

New Orleans.—Domestic demand for corn was only fair last week, but the export call was improved. Corn exports were 7,910 bus, all of which went to Cuba and Costa Rica. Quotations, June 7: No. 2 yellow $1.31 bu, No. 3 $1.29; No. 2 white $1.31, No. 3 $1.29 (for export, 6c bu less, sacked); yellow chops, $2.10 per 100 lbs; hominy feed, $2.25; standard meal, $2.50; cream meal, $2.60; grits, $2.60.

St. Louis.—Mills were the principal buyers of corn last week. Some shipping orders were filled, but demand at best was only fair, while the supply was rather limited, everything being cleaned up closely from day to day. Receipts were 188 cars, against 354 in the previous week. Cash prices, June 9: No. 2 corn $1.04½ bu; No. 1 yellow $1.07, No. 2 yellow $1.07@1.07½, No. 3 yellow $1.06, No. 4 yellow $1.04½, No. 5 yellow $1.04, No. 6 yellow $1.03; No. 1 white $1.07½, No. 3 white $1.07, No. 4 white $1.04. Standard meal was quoted at $2.25 and cream meal at $2.35 per 100 lbs in sacks.

Nashville.—Corn continued in good demand last week. Shipments to the South were the largest for several years. Shipments have been coming from Nebraska and Kansas. Quotations, June 9: No. 2 white corn $1.19 bu, No. 3 white $1.18; No. 2 yellow $1.19½, No. 3 yellow $1.18½. Corn meal demand was good, some carload trade being handled. Grist mills are good buyers of corn. Degerminated cream meal was a shade higher, being quoted, June 9, in 96-lb bags, at $2.60@2.70 per 100 lbs.

Memphis.—Buyers are taking small lots of corn meal. The consuming trade is perhaps buying a little more, as the peak season is on and stocks in the hands of interior jobbers and retailers are very small. Preference is still shown for the cheaper meal, although prices averaged slightly higher last week. Cream was offered at $4.85 up to $5.25 on June 9.

Atlanta.—Comparatively light demand is reported for corn and its products, sales holding up fairly well to mixed feed mills, which are expecting to operate on a larger basis within the next few weeks, but dealers are buying in small quantities for immediate needs only. Prices are about unchanged. Quotations, June 9, f.o.b., Atlanta: No. 2 white western corn, with bill, sacked, $1.27@1.28 bu, No. 3 white $1.26@1.27; No. 2 yellow $1.27@1.28, No. 3 yellow $1.26@1.27.

Kansas City.—Demand for cash corn was fair last week, at slightly lower prices. Quotations, June 9: white corn, No. 2 $1.00½@1.01 bu, No. 3 $1@1.00½, No. 4 99c@$1; yellow corn, No. 2 $1.04@1.04½, No. 3 $1.03½@1.04, No. 4 $1.02½@1.03½; mixed corn, No. 2 98@98½c, No. 3 97½@98c, No. 4 96½@97½c.

Chicago.—A slightly improved demand was reported for corn goods last week, but sales were chiefly in less than car lots. Corn meal was quoted, June 9, at $2.60 per 100 lbs, cream meal $2.55@2.60, and hominy $2.55@2.60. Cash corn was in good demand at a slightly increased basis. Offerings were readily disposed of daily. No. 3 mixed was quoted at $1.03@1.03½ bu, No. 4 mixed $1.02½@1.03, No. 5 mixed $1.01½; No. 2 yellow $1.05¾@1.06, No. 3 yellow $1.04½@1.05, No. 4 yellow $1.03½@1.04½, No. 5 yellow $1.02½@1.02¾, No. 6 yellow $1.00½@1.01¼; No. 2 white $1.05¼@1.05½, No. 3 white $1.03½@1.04½, No. 4 white $1.02½@1.03, No. 5 white $1.01½, No. 6 white $1.00½@1.01.

Indianapolis.—In spite of the fact that this state has prospects of one of the largest corn crops in its history, prices seem well established and demand is considered good. Prices closed somewhat higher. There is rather active buying by feed manufacturers and small rural elevators. Quotations, June 9: No. 3 white 99c@$1.01 bu, No. 4 white 97@99c; No. 3 yellow 99c@$1.01, No. 4 yellow 97@99c; No. 3 mixed 98c@$1, No. 4 yellow 96@98c.

Milwaukee.—Cash corn slumped last week, and closed 1½@2½c below the previous one. There was a good local and shipping demand. Receipts were 317 cars, compared with 474 the previous week. Quotations, June 9: No. 3 yellow $1.04½@1.05 bu; No. 3 white $1.03@1.04; No. 3 mixed, $1.02½@1.03½. Corn meal was in fair demand, and there was a shortage of offerings. The mills are cleaning up their orders, but are in a position to take care of everything they now have. On June 9 it was quoted at $44 ton, f.o.b., Milwaukee.

Minneapolis.—A trifle more interest is shown in local corn offerings, so that cash prices are more in line with the option. No. 2 yellow is quoted at 2@2½c bu under Chicago July; No. 3 yellow, 2½@4c under; No. 4 yellow, 5@7c under; No. 5 yellow, 8@10c under; No. 6 yellow, 10@12c under.

The range of No. 3 yellow corn at Minneapolis for the week ending June 9 was 99½c@$1.05; the closing price on June 11 was 99½c@$1.00½. White corn meal was quoted at Minneapolis on June 12 at $5.70@5.80 per 100 lbs, and yellow at $5.60@5.70.

Evansville.—Local demand is taking care of the greater part of the output of local corn products of mills, which are running on a 24-hour schedule. Local dealers are securing their white corn mainly from the western states, with Illinois supplying considerable. Quotations, June 9, $1.10 bu; corn meal $2.95, cracked corn $2.75, and corn bran $2, per 100-lb sack.

Buffalo.—Recent rains resulting in good pastures have been reflected in the curtailment of demand for feedstuffs, and corn has shared in the dullness. Local stocks are lighter than usual, and rail receipts are not burdensome. Prices are following closely the action of Chicago futures, and will continue to do so until some change occurs in the present situation. On June 9 No. 2 yellow was offered at $1.15½ bu, No. 3 yellow at $1.14½ and No. 4 yellow at $1.12.

Baltimore.—Corn last week sold up to $1.16¼ bu for contract grade and down to $1.13, closing at the latter figure, with demand only fair at best. Arrivals were 16,228 bus by rail and 5,175 by boat. The only sale of record was a car of No. 2 mixed, domestic, Canton elevator, at $1.15. Closing prices, June 9: No. 2 spot, $1.13 (2c down from previous week); domestic No. 2 yellow, track, $1.21@1.22 (1c up from previous week). The big premium for old corn over new at Chicago is attracting attention. Cob corn is unchanged and nominal at $6 bbl. Corn meal and hominy were steady, with only a fair demand at $2.50@2.65 per 100 lbs. The inside figure refers to near-by stock and the outside rate to western goods.

Pittsburgh.—Only a moderate quantity of corn changed hands last week. Offerings were larger. Quotations, June 9: No. 2 yellow, shelled, $1.18@1.19 bu; No. 3, $1.16@1.17; kiln-dried yellow and white meal, fancy, $3@3.10 per 100-lb sacks.

Boston.—Corn for shipment was quiet last week, with prices a shade lower. Quotations, June 9: No. 2 yellow, all-rail shipment, $1.26@1.27 bu; No. 3 yellow, $1.25@1.26; lake-and-rail, No. 2 yellow, $1.24@1.25, No. 3 yellow $1.20@1.22. Demand for corn meal continues quiet, with the market lower, granulated yellow and bolted yellow being quoted at $2.90, with feeding meal and cracked corn $2.40, all in 100-lb sacks. No gluten feed is offered, and the market is nominal.

Philadelphia.—Very little corn arrived last week, and demand was sufficient to readily absorb the offerings. Prices are firmly maintained, the quotation on No. 2 yellow on June 9 being $1.22 bu. Corn goods are in small supply and the market is firmer. Quotation, June 9, in 100-lb sacks: kiln-dried yellow and white meal, fancy, $3.05.

San Francisco.—No California or Argentine yellow corn is offered, and demand for eastern is fair. Quotations, June 8, basis 100 lbs, delivered, San Francisco: eastern No. 2 yellow, $2.27; Egyptian, $2.40, sacked; California milo, $2.30, sacked; eastern No. 2 milo, $2.10, bulk; Kafir, $2.05, bulk.

Toronto.—Dealers report demand for American corn fairly active. A reduction of 1¼c bu took effect last week. On June 9 No. 3 American yellow corn was quoted at $1.08¼ bu, track, bay ports.

OATMEAL

Toronto.—Rolled oats declined 20c last week. Demand is quiet, excepting for package goods, which seem to be moving out in considerable quantities, especially through chain store channels. Quotations, June 9: list price for rolled oats $8.10 bbl for jobbing quantities or $7.60 for car lots to wholesale dealers; oatmeal, in 98-lb jute bags, 10 per cent over rolled oats.

Winnipeg.—No marked improvement is noted in the demand for rolled oats or oatmeal. A limited export business is being worked and a nominal domestic trade is in progress, with prices steady. Quotations, June 9: rolled oats in 80-lb bags $3.70, and oatmeal in 98-lb bags 25 per cent over rolled oats.

Montreal.—Following the decline in oats, cereal millers last week reduced their prices 10c bbl, making their basic price at Montreal $4.05 per 90 lbs on June 8.

Boston.—Demand for oatmeal continues moderate, with the market steady at $3.90 for rolled and $4.29 for cut and ground, all in 90-lb sacks.

Chicago.—Demand for oats goods is quiet, and sales are widely scattered. On June 9, rolled oats were quoted at $3.50 per 90-lb, and oatmeal at $3.90 per 100 lbs.

Buffalo.—Demand for rolled oats continues excellent, with prices a bit higher. Quotations, June 9, in 90's: Buffalo, $4.33; Rochester, $4.38.

Philadelphia.—Demand for oatmeal is only moderate, but supplies are small and the market is firmer. Quotations, June 9, $4.67 per 100-lb jute sack for ground, and $4.27 for rolled oats in 90-lb jute sacks.

Minneapolis.—Rolled oats were quoted on June 12 at $3.80 per 90 lbs.

In 1926 the annual per capita consumption of candy in the United States was 12 lbs.

THIS WEEK'S COVER

FOR many years the quaintly phrased, humorously illustrated sayings of Old Dad Fetchit of the Fish River Roller Mills have been familiar to readers of The Northwestern Miller. His comments deal with the fundamental follies and virtues of the milling industry in which he occupies a wide acquaintance and respect, though he is purely a man of fiction, conceived and impersonated by a member of the staff.

His "portrait," which appears on the cover of this week's issue of The Northwestern Miller, is the work of the American artist, Edward Windsor Kemble.

Mr. Kemble, whose home is Jackson Heights, N. Y., was born in Sacramento, Cal., on Jan. 18, 1861. Since 1881 he has been connected with various monthly magazines and weekly journals in the capacity of illustrator and cartoonist. Most of his work has been with pen and ink, and his best-known drawings are of Negro characters with tattered exterior and a whimsical outlook upon life. He is considered one of the ablest cartoonists in America.

TRANSPORTATION

GRAIN RATE HEARING STILL IS UNDER WAY AT SEATTLE

SEATTLE, WASH.—The Interstate Commerce Commission grain rate hearing at Seattle under the Hoch-Smith resolution was confined last week to the Portland differential rate on products originating south of the Snake River.

A number of wheat growers in the differential territory testified in favor of the same rates to Seattle and Tacoma as to Portland, in order to broaden their markets and secure the competition of Puget Sound buyers, even at the cost of higher rates to Portland.

The Northern Pacific Railway, heretofore neutral in the differential fight, advocated the removal of the differential. J. G. Morrison, of St. Paul, general freight agent, favored the elimination of the differential by raising the Portland rate by 5 per cent and lowering the Seattle rate by 5 per cent, but conceded that, if necessary, the Northern Pacific would be inclined to reduce the Seattle rate to a reasonably fixed Portland level, in order to secure business from differential territory for cars which are now hauled empty to Puget Sound ports.

L. P. Baumann, secretary-treasurer of the Centennial Mill Co., Seattle, urged that Puget Sound millers should be given access to Snake River wheat. While admitting that Portland exporters competed in differential territory with each other, he stated that such competition would be wider and freer if more Puget Sound buyers were bidders for wheat in differential territory.

O. D. Fisher, president of the Fisher Flouring Mills Co., Seattle, testified that the 10 per cent differential in favor of Portland on grain grown south of the Snake River discouraged flour milling in the Pacific Northwest and encouraged the export of wheat for milling by oriental mills. Portland, he testified, was principally a grain exporting port, and grain shipped there was primarily for that trade. Millers, because of the demands for various varieties of wheat used in making flour, both for domestic and export trade, should have the privilege of buying wheat from the greatest possible territory. This cannot be done with a differential in favor of one individual port, and because of this differential his company, which had bought land at Portland for a large contemplated flour mill there, had not constructed the mill.

He referred to the desirability of manufacturing grain into flour in this country for the oriental trade, rather than the shipment of the grain to the Orient for making flour there. Increased poultry raising and the growing dairy industry on the Pacific Coast were constantly making growing demands on the mills for byproducts to be used as feed. The advantages of milling in this country were apparent through the records of his own company with a payroll of $6,000,000 a year.

The fact that his company had often been able to buy grain south of the Snake River despite the differential was evidence that the growers frequently did not receive from Portland buyers the benefit of the lower freight rate to that city.

On the conclusion of the Portland differential case the Commission will proceed to consider the Montana 7c export grain rate to the north Pacific Coast. Minneapolis, southern Minnesota, Duluth and Montana mill traffic experts will appear in opposition to the export differential.

CHINESE SHIPPING COMPANY

The China Merchants' Steam Navigation Co. has been taken over by the Nanking government, Consul General Edwin S. Cunningham, Shanghai, has reported to the Department of Commerce. The value of the company's 27 steamers, together with its wharves, warehouses and other property in Shanghai and elsewhere in China, is estimated at approximately $25,000,000.

Mistress (just returned from a shopping trip): "Did any one call during my absence, Bridget?"

Bridget: "Only a commitay o' ladies, ma'm, but Oi sent them off wi' a flea in their ears."

Mistress (greatly perturbed): "Oh, my! What did you say to them, anyway?"

Bridget: "Sure, an' they said they called t' c'llect money t' buy coal f'r th' church, an' Oi told thim ye may look simple but yez's no fool, f'r well ye know th' church is h'ated by steam."—*Wall Street Journal.*

* *

PRACTICAL APPLICATION

A works foreman congratulated one of his men on his new Sunday suit, but suggested the use of a coat hanger to make the jacket set better, adding the information that they could be obtained at a store for threepence. On meeting his colleague on the following Sunday, the workman said: "I've 'ad to give up that coat 'anger. It was very trying across the shoulders, and when I stooped down the 'ook pushed my 'at off."—*Wall Street Journal.*

* *

We learn from the press that the latest vogue in London is bottle and pajama parties. They may be a lot of fun, but young fathers have never thought so.—*Judge.*

* *

A CLERICAL ERROR

A clergyman, who had given up his former position as a magistrate in order to enter the church, was conducting his first marriage service.

"Wilt thou have this man to be thy wedded husband?" he asked the bride.

The bride answered eagerly: "I will."

"And you," he continued, addressing the bridegroom, "what have you to say in your defense?"—*Tit Bits* (London).

* *

SOUND LOGIC

A colored preacher had just concluded a sermon on "Salvation am Free," and announced that a collection would be taken up for a benefit of the parson and his family. A member in the audience objected to the paradoxical nature of the proceedings and received this bit of Negro logic in response:

"S'pose yo' was thirsty an' come to a river. Yo' could kneel right down an' drink your fill, couldn't yo'? An' it wouldn't cost yo' nothin'. Dat water would be free. But, s'posin' yo' was to hab dat water piped to yo' house, yo'd have to pay, wouldn't yo'? De salvation am free, but it's de habin' it piped to yo' dat yo' got to pay fo'."—*Wall Street Journal.*

* *

Piano Man: "How's business?"

Scissors Grinder: "Fine! I've never seen things so dull."—*Life.*

* *

He: "You shouldn't be angry with Dottie because she stole one of your boy friends. Don't you know what the Bible says about forgiveness?"

She: "Oh, sure; I suppose I should turn over the other sheik!"—*Judge.*

* *

ANECDOTES OF FAMOUS CHARACTERS

With all apologies to Big Bill Thompson, we feel constrained to snake a fast one over on Queen Victoria. On the same night that the nuptial queen is reported to have exploded her bromide about "We are not amused," she is also declared to have stuck around a few minutes longer to disgorge the following faster one as, feeling a little griped about the whole performance, she gently rubbed her stomach, repeating meanwhile, "Oh, hum; now I have that mid-Victorian feeling again."—*J. J. Schifferes, in Judge.*

* *

The Texas horned toad that was buried for 31 years in a cement block has been sent to President Coolidge. Mr. Coolidge might reciprocate by sending back some of his associates who have been buried for years in a farm bloc.—*Judge.*

* *

"Hexagon Simms," teacher said to a colored pupil who had just been whispering and was looking very innocent, "do you know what deceit is?"

"Yassum," was the reply. "When Ah leans over an' hears somethin' rip, Ah knows dat's de seat."—*Country Gentleman.*

* *

WANTED

"FEMALE impersonator; must sing, dance and produce."—*Reno* (Nev.) *Register and Tribune.*

It seems to us that this is altogether too much to ask, even of a female impersonator.—*Life.*

* *

MISSED THE "SUN"

"I had a wonderful time at Cannes."

"Did you get brown?"

"No, I'm engaged to his father. He's wealthier and has the cutest dimples."—*Wall Street Journal.*

ATLANTA

As practically all buyers seem to be waiting for new crop prices before placing orders for their advance needs, business was unusually quiet last week, brokers and mill representatives stating that, while there are a few bookings from bakery concerns for their current needs, there are few if any orders for even as far ahead as 30 days, and scarcely any business with jobbers. With most orders, request is made for immediate shipment, and movement of flour in this district is therefore relatively larger than it has been. Buyers' stocks probably will last for another two or three weeks, when it is expected new crop prices will be quoted. The trade is of the opinion that flour shipments during July will be heavy.

Soft wheat mills are reported doing but little business, production being estimated at hardly more than one half capacity of the mills. This is nearly 25 per cent less than a year ago, though about on a par with production at this period in 1925 and 1926. Output is about 10 per cent less than a month ago. Soft wheat millers are confident there will be considerable improvement in sales with the new crop, and expect to be operating on a considerably larger basis within the next three or four weeks.

Prices last week declined approximately 15c bbl. Quotations, June 9, f.o.b., Atlanta, basis 98-lb cottons: hard winter short patent $8.10@8.35 bbl, standard patent $7.65@7.90, straight patent $7.50@7.60, low protein $8.35@8.60; soft winter short patent $9.35@9.55, standard patent $8.85@9.05, straight patent $8.35@8.55, fancy clears $7.95@8.15, second clears $7.45@7.65; spring wheat short patent $8.10@8.35, standard patent $7.65@7.90, straight patent $7.50@7.60; Utah, Idaho, Oregon and Washington soft white wheat flour, $7.60@7.90.

NOTES

Will Skillman, representing the Arcady Farms Milling Co., Kansas City, was a business visitor here last week.

J. J. Neilson, of the Abilene (Kansas) Flour Mills Co., visited Atlanta brokers last week, en route on a southeastern trip.

John C. Neil, southern sales representative for the William Kelly Milling Co., Hutchinson, Kansas, was in Atlanta last week.

Clifford R. Heaney, sales manager for the Zenith Milling Co., Kansas City, has returned to that city after a trip through the Southeast.

Walter H. LaFever, representative of the Washburn Crosby Co., Minneapolis, has returned to his headquarters in Atlanta after a southeastern trip.

Theodore A. Hiebert, sales representative of the Wall-Rogalsky Milling Co., McPherson, Kansas, is making a trip through the Southeast, calling on the mill's connections.

A. M. Scott, of the sales department of the Astoria (Oregon) Flouring Mills Co., is in the Southeast, calling on the mill's connections, after a similar trip through the East.

C. T. Bramblett, of the Southern Service Corporation, returned to Atlanta last week after a trip through Florida, where he visited a number of the Southern Baking Co. plants.

Mrs. E. F. Schulz, whose husband represents the Midland Flour Milling Co., Kansas City, in southeastern territory, is reported to be considerably improved, following a serious operation.

M. D. Leonard, president of the Park & Pollard Co., Boston, feed distributor, was in this section recently on his way back to Boston after spending most of the winter at a Florida resort.

R. C. Crosswhite, formerly a southeastern sales representative of the Plant Flour Mills Co., St. Louis, has accepted a position as salesman in part of Indiana and Illinois for the Crete (Neb.) Mills.

William H. Danforth, president of the Ralston Purina Co., St. Louis, recently made a trip through southeastern territory, visiting the company's branches, at most of which sales meetings of employees were held.

HAROLD F. PODHASKI.

FLOUR BRANDS

The following list of trademarks, published in the Official Gazette of the United States Patent Office on June 5, prior to registration, is reported to The Northwestern Miller by Mason, Fenwick & Lawrence, patent and trademark lawyers, Washington, D. C. Millers and flour dealers who feel that they would be damaged by the registration of any of these marks are permitted by law to file, within 30 days after publication of the marks, a formal notice of opposition.

MODERN MAID and girl design; Modern Maid Foods, Inc., Los Angeles; pie-crust flour and waffle flour. Use claimed since Feb. 14, 1928.

PEACOCK; Shellabarger Mills & Elevator Co., Salina, Kansas; wheat flour. Use claimed since March, 1886.

TRIPLE CROWN and three-crown design; Duluth-Superior Milling Co., Duluth, Minn; wheat flour. Use claimed since Feb. 14, 1928.

WONDERSACK FLOUR and design; Shellabarger Mills & Elevator Co., doing business as the Mid-Kansas Milling Co., Salina, Kansas; wheat flour. Use claimed since Oct. 21, 1927.

YOUTH; Murphysboro (Ill.) Grocery Co; pancake flour, canned hominy, spaghetti, macaroni, and other foods. Use claimed since about Sept. 1, 1927.

Special Notices

The rate for advertisements in this department is five cents per word; minimum charge, $1.

For the benefit of those out of a position, advertisements of Situations Wanted will be accepted at one half the above rate, 2½ cents per word; minimum charge, 50 cents.

"Display" advertisements will not be inserted at the line rate, but will be charged for at the rate of $4 per column inch.

Only advertisements entitled to Special Notice classification will be accepted for publication herein.

Advertisements under this heading are transient and the advertiser's responsibility is not necessarily vouched for by The Northwestern Miller.

Copy for advertisements in this department must reach us by Saturday to appear in the issue of the following Wednesday.

Cash should accompany all orders.

HELP WANTED

WANTED—SALESMAN NOW CALLING ON the grain and coal dealers, to sell calculators; your territory protected. N. C. Ensworth, Warren, Pa.

RELIABLE SPRING WHEAT MILL wants aggressive flour and feed salesman on a liberal commission basis for desirable transit territories in Minnesota, Iowa and Wisconsin. Address 1640, care Northwestern Miller, Minneapolis.

WANTED—SALESMAN COVERING BAKERY trade regularly to handle nationally advertised line of bakery sales display equipment that is designed especially for bakeries; furnish full details about yourself, territory covered, present line; attractive prices and terms and liberal commissions. Address 1633, care Northwestern Miller, Minneapolis.

SITUATIONS WANTED

AS SECOND MILLER, HARD OR SOFT wheat mill, 1,000 bbls or over; married; can come on 15 days' notice. Address 1639, care Northwestern Miller, Minneapolis.

SECOND MILLER OR HEAD MILLER IN spring or semolina mill of any capacity; past seven years with Commander mill, Stillwater, Minn; married man; family; can come at once. Address J. C. Salak, 402 S. Main Street, Stillwater, Minn.

DEATH OF PRESIDENT AND STOCKholders' troubles closed this 700-bbl mill, of which I had charge for several years, and my services are available; lifetime experience in mills up to 3,000 bbls hard and soft wheat; best of references. Address 1622, care Northwestern Miller, Minneapolis.

EXPERIENCED FLOUR SALESMAN FOR several years on New Orleans, Louisiana, Mississippi and Alabama trade desires to connect with mill marketing high grade line family and bakery hard wheat flours; can furnish best of references covering qualifications, character, ability, etc; highest possible recommendations from present connection; in position to deliver substantial volume through largest New Orleans flour jobber and can carry several country accounts with me to right kind of mill; present connection severed as of July 1, with right to make earlier connection if essential. Address 1638, care Northwestern Miller, Minneapolis.

SALES MANAGER OR MANAGER—OVER 25 years' experience domestic and export flour business; thorough practical knowledge qualities and grades milled from various wheats; knowledge milling; practical baking experience; occupied positions as managing and sales executive, local and traveling salesman; have had contact with all classes buyers; experience includes employing, training and organizing large office and selling staff, appointing representatives, developing and organizing new business practically throughout world, financing, buying and selling, handling and supervising all sales, correspondence, cables, etc. Have traveled extensively in United States, Canada, Europe; successful record as producer and developer of new business; highest references; salary secondary consideration; opportunity wanted to prove ability. Address 1642, care Northwestern Miller, Minneapolis.

MILLS FOR SALE AND TO LEASE

KANSAS COUNTRY MILL FOR SALE

Excellent local mill, built a few years ago, Nu-Way system, 50 bbls capacity; cost $13,000; will sell at bargain to right man; splendid wheat crop in sight; fine local trade field. Address Box 116, Frankfort, Kansas.

MILL MACHINERY FOR SALE

FOR SALE—THREE DOUBLE STANDS 9x30-in., one 9x24-in. Allis Chalmers, collar oiling, style "A" roller mills. Standard Mill Supply Co., 502 Waldheim Bldg., Kansas City, Mo.

Canadian Special Notices

MILLS FOR SALE AND TO LEASE

FOR SALE IN MANITOBA—100-BBL N. & M. mill in first class condition and running; brick and stone structure; Corliss condensing engine with two boilers; elevator, 16,000 bus capacity; flour and feed warehouses, stable and about 3½ acres land; established 33 years; good reasons given for wanting to sell; about 35 per cent cash, balance as desired; full particulars on application. Address 1616, "Manitoba," care Northwestern Miller, Lumsden Building, Toronto.

MISCELLANEOUS

FOR SALE—GRAIN, COAL AND HAY outfit in a splendid district in old Ontario; good money maker; price $20,000. Address 1636, care Northwestern Miller, Minneapolis.

G. S. DE CLERCQ JR. & CO.
P. O. Box No. 1895
RIO DE JANEIRO (BRAZIL)
Flour Importers
Solicit: Samples, quotations and terms.
Telegraph: GUYCLERCQ—RIO

LEADING MILLS OF MICHIGAN

WHITE CAKES *must be* WHITE

and here's the flour to make them so!

FOR DELICATELY flavored White Cake and feathery Angel Food, we mill our Velvet brand.

The pick of soft Michigan Winter Wheat goes into the making. With each season's crop—before we buy—we work with different samples of wheat from different sections. And we blend them until our laboratory and baking tests prove we've reached just the right balance.

In every sack of Henkel's Velvet you have the right foundation for whiter, finer, fluffier cake.

Henkel's EXTRA FANCY
FLOURS
"MADE GOOD" *since* 1855

Soft Wheat Flours
Velvet
Seal of Purity
Royal Star

Hard Wheat Flours
Bakers Best
Keno
Chief Pontiac

COMMERCIAL MILLING CO.
CLEVELAND DETROIT PITTSBURGH

VOIGT MILLING COMPANY
GRAND RAPIDS, MICH., U. S. A.
MANUFACTURERS OF
Hard Wheat Flours
MARK TWAIN
COLUMBIAN
PEP
Soft Wheat Flours
CRESCENT
ROYAL PATENT
GILT EDGE SELF RISING

Quality Michigan Flour
Plain and Self-Rising
Made exclusively from Michigan wheat—we grind nothing else. *Open for Connections*
CHELSEA MILLING CO. - CHELSEA, MICH.

Watson-Higgins Milling Co.
Fancy Soft Wheat Flour
"NEW PERFECTION" Flour
"FIRST PRIZE" Self-Rising Flour
GRAND RAPIDS, MICH.

THE A. H. RANDALL MILL CO.
Millers of Michigan Quality
SOFT WHEAT FLOUR
New up-to-date mill just completed. Open for a few additional connections.
TEKONSHA, MICH.

The Huron Milling Co. Harbor Beach Michigan
SHORT FINE BISCUIT FLOUR WHITE
Made from selected White Winter Wheat of a quality Peculiar to This Section.

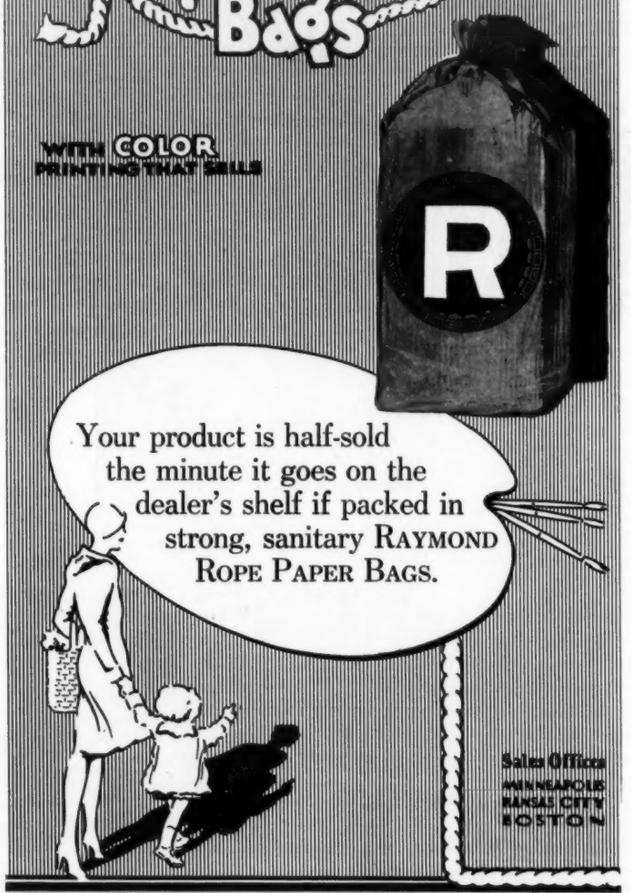
SANISACK
ARKELL & SMITHS
CANAJOHARIE, N.Y.

AMES HARRIS NEVILLE CO.
BURLAP & COTTON BAGS
& SEWING TWINE
PORTLAND, ORE. SAN FRANCISCO, CAL.

W. O. Hartig Electric Co.
312 Marquette Ave. Minneapolis
Satisfaction Guaranteed—Get Our Prices on
Anything Electrical
Milling Business Solicited
Estimates furnished on all work

Raymond Rope Paper Bags

WITH COLOR PRINTING THAT SELLS



Sales Offices
MINNEAPOLIS
KANSAS CITY
BOSTON

The RAYMOND BAG CO. MIDDLETOWN OHIO

STORAGE IN TRANSIT
THE KEYSTONE WAREHOUSE CO.
Buffalo, N. Y.

FAIRBANKS, MORSE & CO.
SCALES—MOTORS
DIESEL ENGINES
PUMPS
CHICAGO, ILL.

SINCE 1880

Bodmer's "Old Reliable"

BOLTING CLOTHS

THE WEAVER CO., *Agents*
Flour Exchange
Minneapolis, Minn.

Riverside Code FIVE LETTER REVISION Issued in 1923 **Per Copy $12.50**
For sale by all its branches and THE NORTHWESTERN MILLER, Minneapolis, Minn., U. S. A.

LEADING MILLS OF THE SOUTHWEST

KANSAS EXPANSION FLOUR

The Wichita Flour Mills Co.
Wichita, Kansas

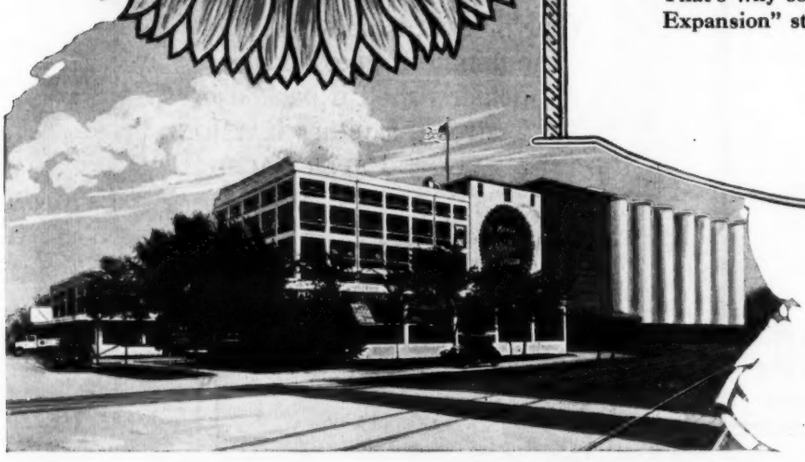
WHEAT STORAGE CAPACITY ONE MILLION BUSHELS

CAPACITY, 2500 BBLS.

THE WHEAT'S THE THING!

Good wheat makes good flour.—It's a simple formula, but it takes courage to follow.

That's why so many flours are below the "Kansas Expansion" standard.



Eastern Representatives

Elliott Brokerage Co., Bluefield, W. Va.
C. J. Hanebrink & Co., 407 Merchants Exch., St. Louis, Mo.
Buley-Patterson Co., Inc., Cumberland, Md.
J. C. Consodine Co., 1503 Mer. Bk. Bldg., Indianapolis, Ind.
R. H. Addington, 694 Washington Rd., Pittsburgh, Pa., S. H. B.
Harry D. Garst, Huntington, W. Va.
H. B. Scanland, Bluefield, W. Va.
H. C. Hagerman, Mount Bethel, Pa.

Southeastern Representatives

Chas. M. Britt Co., Asheville, N. C.
B. F. Parker, Atlanta, Ga.

FRED BURRALL, Field Manager

"Old Trail" Very strong flour from western Kansas wheat
600 Barrels
THE WILSON FLOUR MILLS
WILSON, KANSAS

Majestic Milling Co.
AURORA, MO.
Millers of Soft and Hard WINTER WHEAT FLOUR
Live connections wanted in all markets.
Capacity, 1,000 Barrels

KEYSTONE MILLING COMPANY
Capacity, 750 Barrels
LARNED - KANSAS

"OLD HOMESTEAD"
Capacity, 1,200 Bbls
Milled from Western Kansas High Gluten Wheat
THE DODGE CITY FLOUR MILLS
Dodge City, Kansas

NEW ERA MILLS
ROLLER FLOUR
REGISTERED IN U.S. PATENT OFFICE
WHITE CREST
THE J.C. LYSLE MILLING CO
LEAVENWORTH KS

White Crest
The Perfect Flour

The demand for high grade flour is increasing rapidly enough to justify the interest of the far-sighted jobber in the WHITE CREST account.

J. C. LYSLE MILLING COMPANY
LEAVENWORTH, KANSAS